STACK 6

THE ARCHITECTS' JOURNAL



standard contents

every issue does not necessarily contain all these contents, but they are the regular features which continually recur

NEWS and COMMENT
Astragal's Notes and Topics
Letters
News
Diary
Societies and Institutions

TECHNICAL SECTION
Information Sheets
Information Centre
Current Technique
Working Details
Questions and Answers
Prices
The Industry

CURRENT BUILDING
Major Buildings described:
Details of Planning, Construction, Finishes and Costs
Buildings in the News
Building Costs Analysed

Architectural Appointments Wanted and Vacant

No. 3161] [VOL. 122

THE ARCHITECTURAL PRESS

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★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ie one week, Ig to Z the next. In all cases where the town is not mentioned the word LONDON is implicit in the address.

IGE	Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.1.	Sloane 8266
IHVE	Institution of Heating and Ventilating Engineers. 49, Cadogan Square.	Sloane 1601/3158
IIBDID	Incorporated Institute of British Decorators and Interior Designers. Drayton House, Gordon Street, W.C.1.	Euston 2450
ILA	Institute of Landscape Architects. 12, Gower Street, W.C.1.	Museum 1783
I of Arb	Institute of Arbitrators. 35/37, Hastings House, 10, Norfolk Street, Strand, W.C.2.	Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1.	Museum 7197/5176
IQS	Institute of Quantity Surveyors, 98, Gloucester Place, W.1.	Welbeck 1859
IR	Institute of Refrigeration. Dalmeny House, Monument Street, E.C.3.	Avenue 6851
IRA	Institute of Registered Architects. 47, Victoria Street, S.W.1.	Abbey 6172
ISE	Institute of Structural Engineers. 11, Upper Belgrave Street, S.W.1.	Sloane 7128
LDA	Lead Development Association. Eagle House, Jermyn Street, S.W.1.	Whitehall 7264/4175
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1.	Museum 3891
LSPC	Lead Sheet and Pipe Council. Eagle House, Jermyn Street, S.W.1.	Whitehall 7264/4175
MARS	Modern Architectural Research Group (English Branch of CIAM). Secretary: Trevor Dannatt A.R.I.B.A., 71, Blandford Street, W.1.	Welbeck 4713
MOA	Ministry of Agriculture and Fisheries. 55, Whitehall, S.W.1.	Whitehall 3400
MOE	Ministry of Education. Curzon Street House, Curzon Street, W.1.	Mayfair 9400
MOH	Ministry of Health. 23, Savile Row, W.1.	Regent 8411
MOHLG	Ministry of Housing and Local Government. Whitehall, S.W.1.	Whitehall 4300
MOLNS	Ministry of Labour and National Service. 8, St. James' Square, S.W.1.	Whitehall 6200
MOS	Ministry of Supply. Shell Mex House, Victoria Embankment, W.C.	Gerrard 6933
MOT	Ministry of Transport. Berkeley Square House, Berkeley Square, W.1.	Mayfair 9494
MOW	Ministry of Works. Lambeth Bridge House, S.E.1.	Reliance 7611
NAMMC	Natural Asphalte Mine Owners and Manufacturers Council. 94/98, Petty France, S.W.1.	Abbey 1010
NAS	National Association of Shopfitters. 9, Victoria Street, S.W.1.	Abbey 4813
NBR	National Buildings Record. 31, Chester Terrace, Regent's Park, N.W.1.	Welbeck 0619
NCBMP	National Council of Building Material Producers. 10 Storey's Gate, S.W.1.	Abbey5111
NEFMAI	National Employers Federation of the Mastic Asphalt Industry. 21, John Adam Street, Adelphi, W.C.2.	Trafalgar 3927
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1.	Langham 4041/4054
NFBTO	National Federation of Building Trades Operatives. Federal House, Cedars Road, Clapham, S.W.4.	Macaulay 4451
NFHS	National Federation of Housing Societies. 12, Suffolk St., S.W.1.	Whitehall 1693
NHBRC	National House Builders Registration Council. 82, New Cavendish Street, W.1.	Langham 4341
N.P.L.	National Physical Laboratory. Head Office, Teddington.	Molesey 1380
NSAS	National Smoke Abatement Society. Chandos House, Buckingham Gate. S.W.1.	Abbey 1359
NT	National Trust for Places of Historic Interest or Natural Beauty. 42, Queen Anne's Gate, S.W.1.	Whitehall 0211
PEP	Political and Economic Planning. 16, Queen Anne's Gate, S.W.1.	Whitehall 7245
RCA	Reinforced Concrete Association. 94, Petty France, S.W.1.	Abbey 4504
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh.	Fountainbridge 7631
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1.	Langham 5721
RICS	Royal Institution of Chartered Surveyors. 12, Great George St., S.W.1.	Whitehall 5322/9242
RFAC	Royal Fine Art Commission. 22A, Queen Anne's Gate, S.W.1.	Whitehall 3935
RS	Royal Society. Burlington House, Piccadilly, W.1.	Regent 3335
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2.	Trafalgar 2366
RSH	Royal Society for the promotion of Health. 90, Buckingham Palace Road, S.W.1.	Sloane 5134
RIB	Rural Industries Bureau. 35, Camp Road, Wimbledon, S.W.19.	Wimbledon 5101
SBPM	Society of British Paint Manufacturers. Grosvenor Gardens House, Grosvenor Gardens, S.W.1.	Victoria 2186
SCR	Society for Cultural Relations with the USSR. 14, Kensington Square, London, W.8.	Western 1571
SE	Society of Engineers. 17, Victoria Street, Westminster, S.W.1.	Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, London, E.C.3.	Mansion House 3921
SIA	Structural Insulation Association. 32, Queen Anne Street, W.1.	Langham 7616
SNHTPC	Scottish National Housing. Town Planning Council. Hon. Sec., Robert Pollock, Town Clerk, Rutherglen.	
SPAB	Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1.	Holborn 2646
TCPA	Town and Country Planning Association. 28, King Street, Covent Garden, W.C.2.	Temple Bar 5006
TDA	Timber Development Association. 21, College Hill, E.C.4.	City 4771
TPI	Town Planning Institute. 18, Ashley Place, S.W.1.	Victoria 8815
TTF	Timber Trades Federation. 75, Cannon Street, E.C.4.	City 5051
WDC	War Damage Commission. 6, Carlton House Terrace, S.W.1.	Whitehall 4341
ZDA	Zinc Development Association. 34, Berkeley Square, W.1.	Grosvenor 6636

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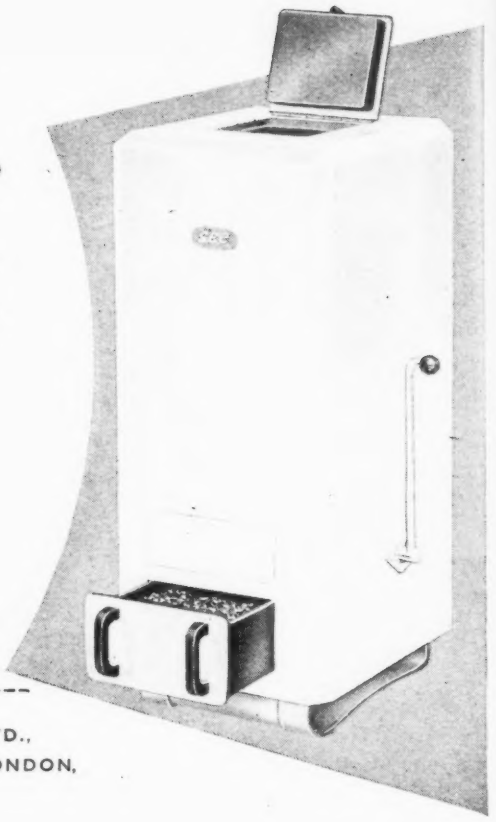
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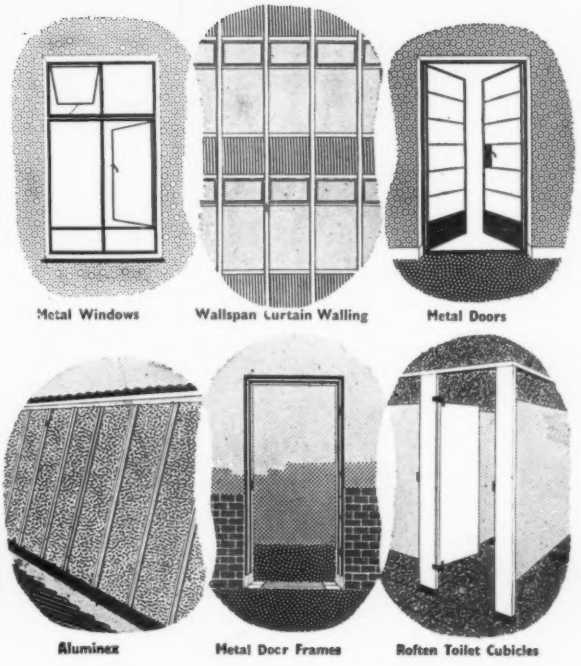
Or this, you might say more truthfully, is Tony Littlewood, Yorkshireman, doing what comes naturally to a Yorkshireman —watching cricket. A rare occasion these days! Mr. Littlewood, who has been in windows since leaving school, is deceptively amusing and casual. But when he talks windows or Wallspan or Aluminex it is worthwhile listening. And, make no mistake, his team of representatives, draughtsmen, estimators and fixers give (like Mr. Littlewood) quite first class service.

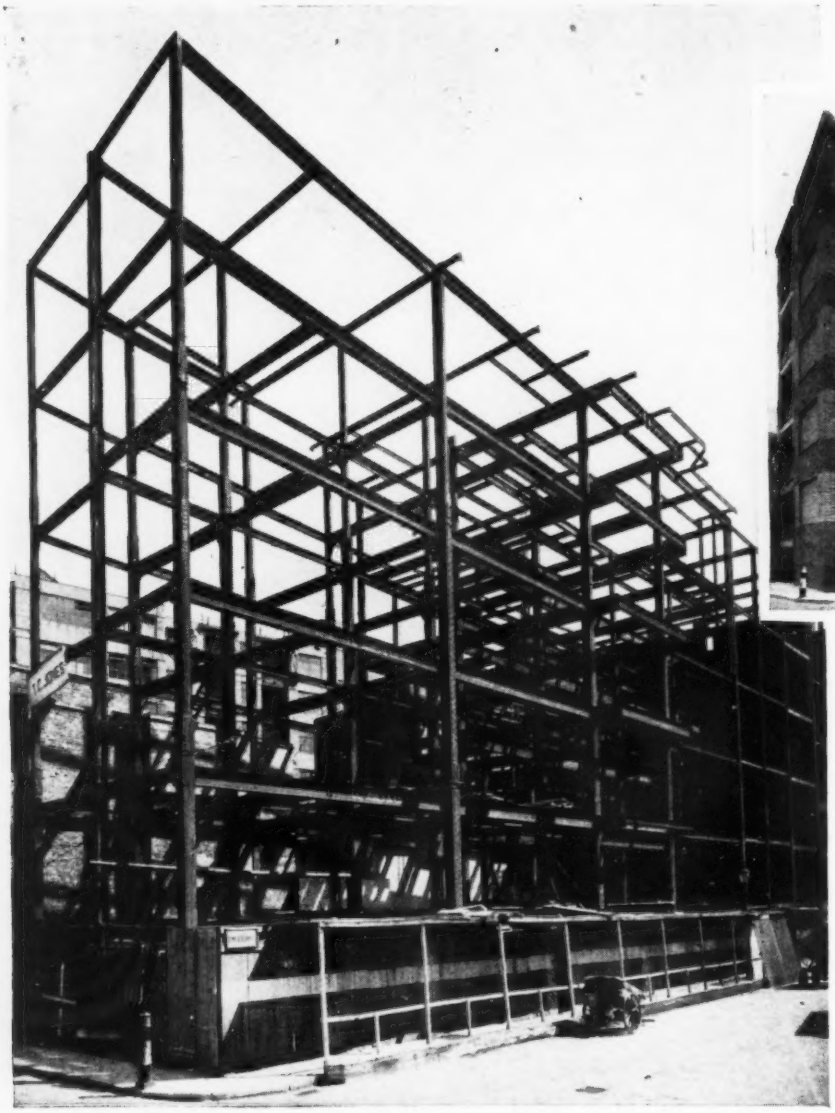
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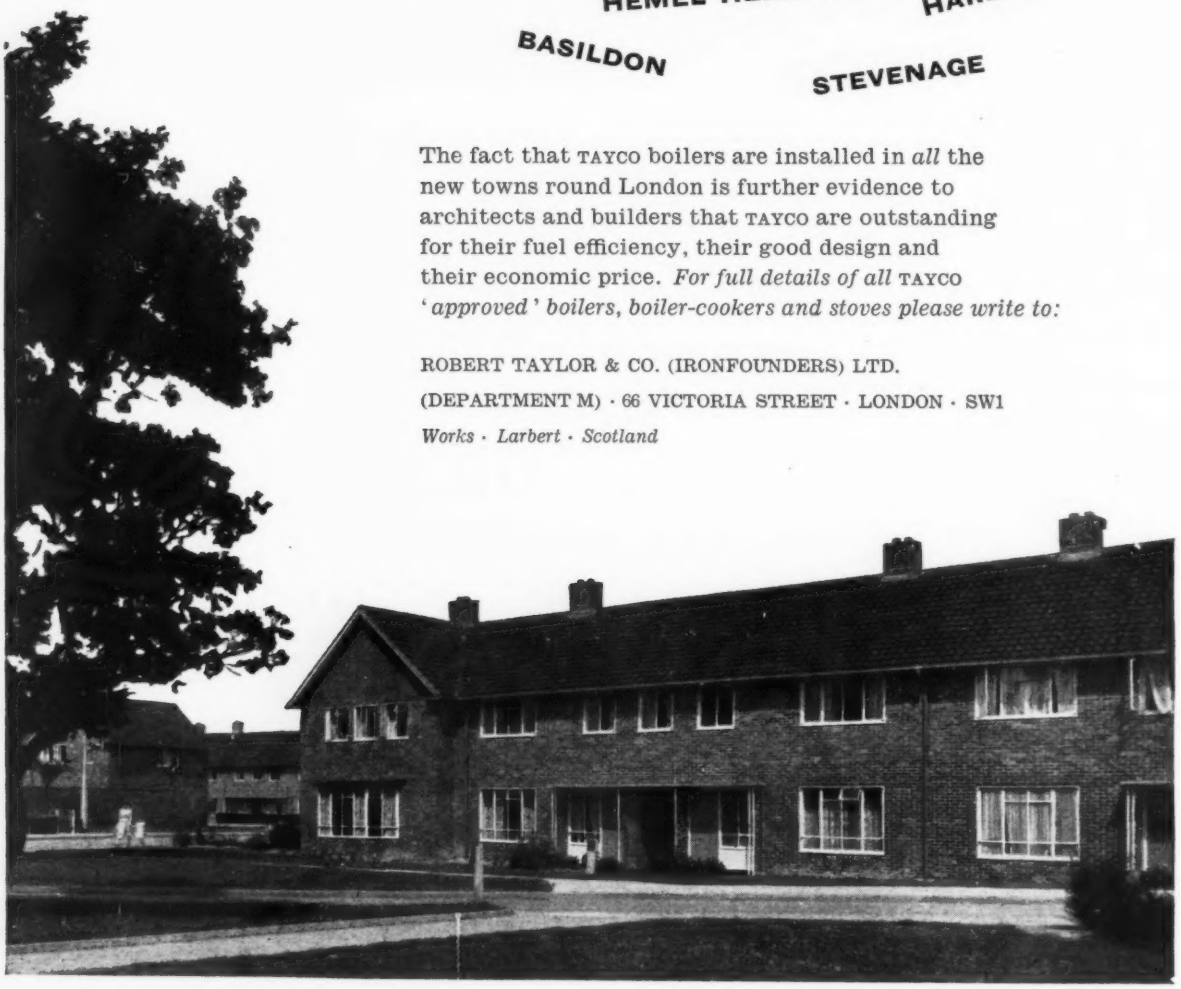
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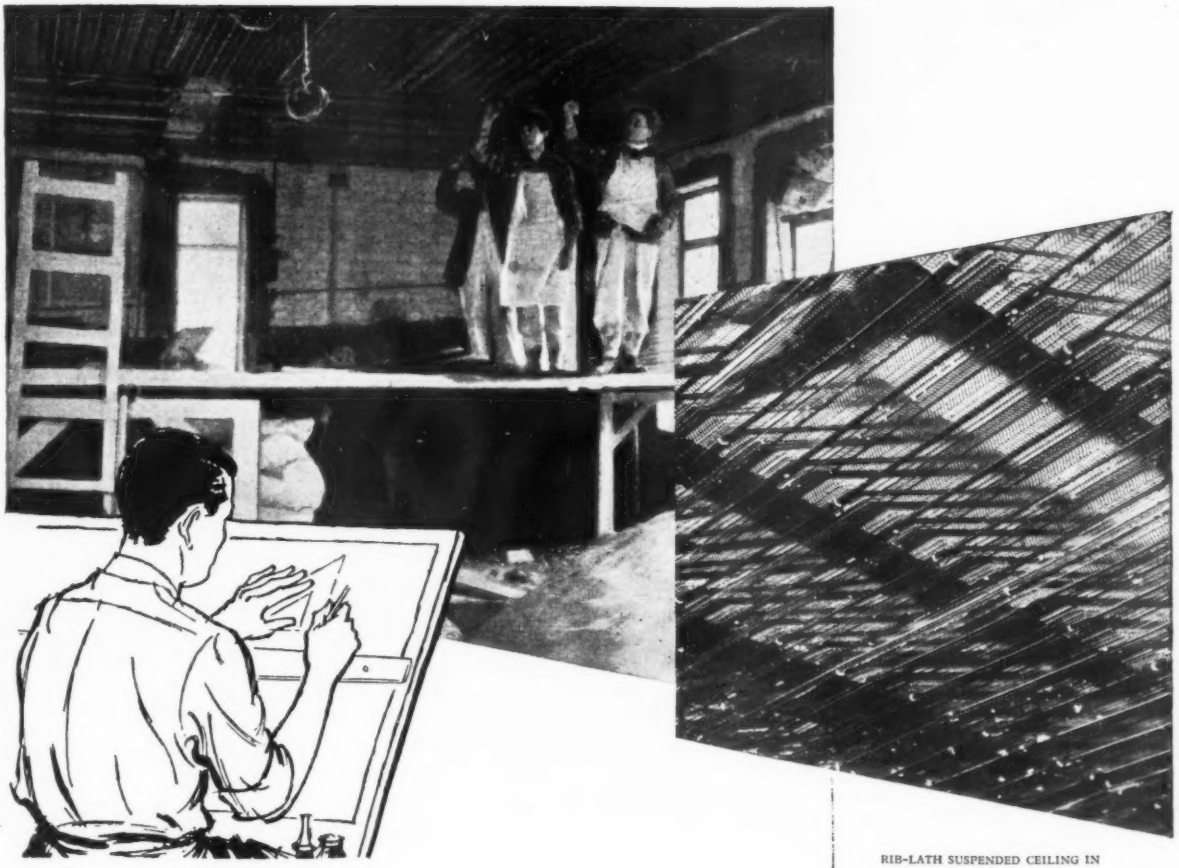
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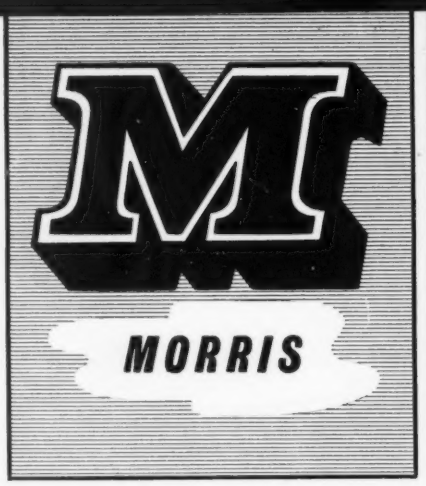
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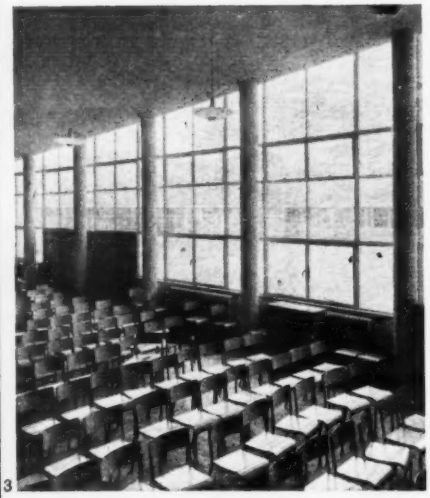




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1 David Greig Sign. Architects: Robert Paine & Partners, A.R.I.B.A.

2 & 3 Bishop Ward School. Architects: Messrs. Sterrett & Blouet, A/A.R.I.B.A.

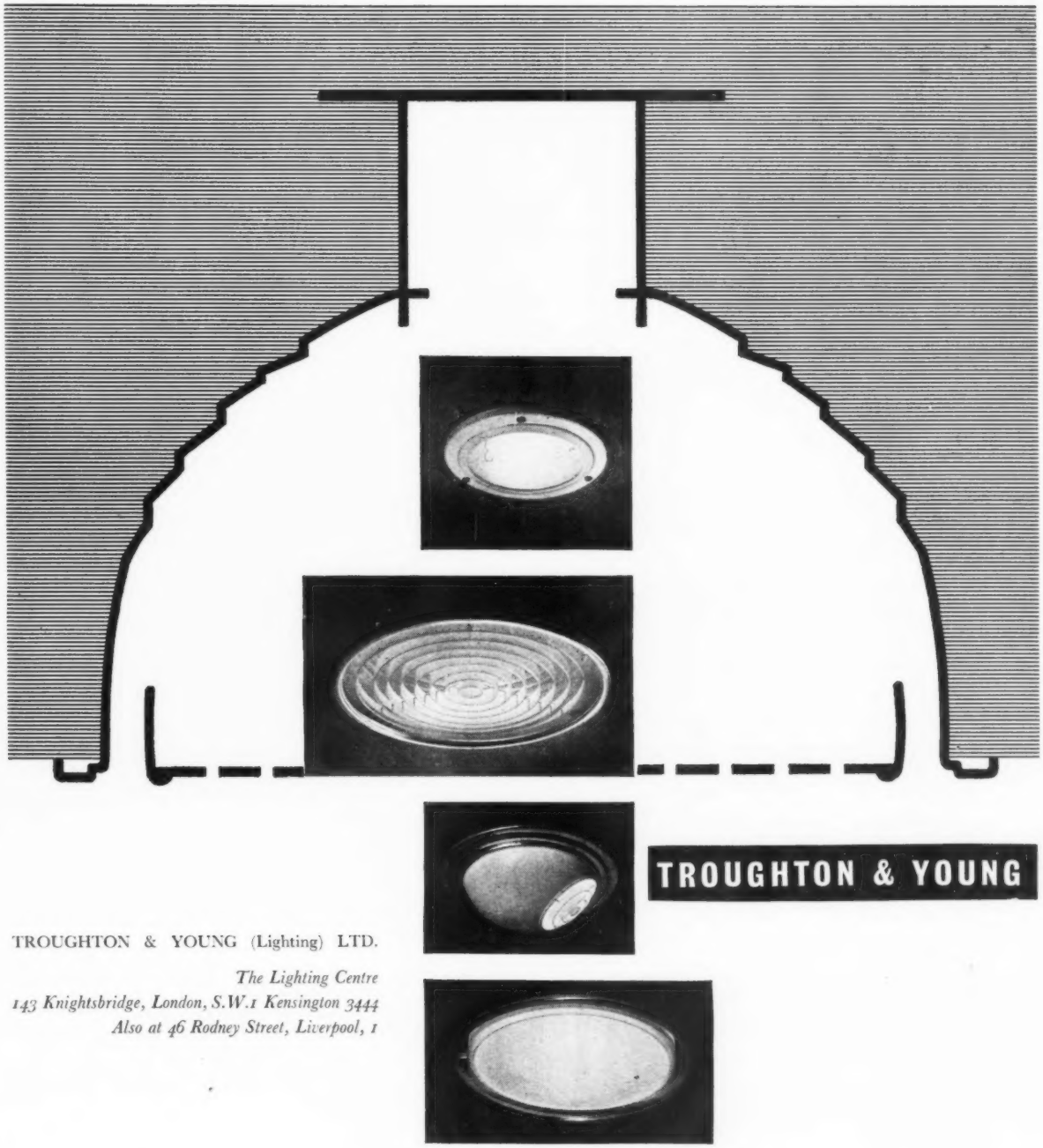
4 & 5 Pearl Assurance House, Canterbury. Architects: Messrs. Ernest Bates & Wm. G. Sinning, F/A.R.I.B.A.

6 Swimming Pool Metalwork 'S.S. Arcadia'. Architects: Messrs. A. McInnes, Gardner & Partners.

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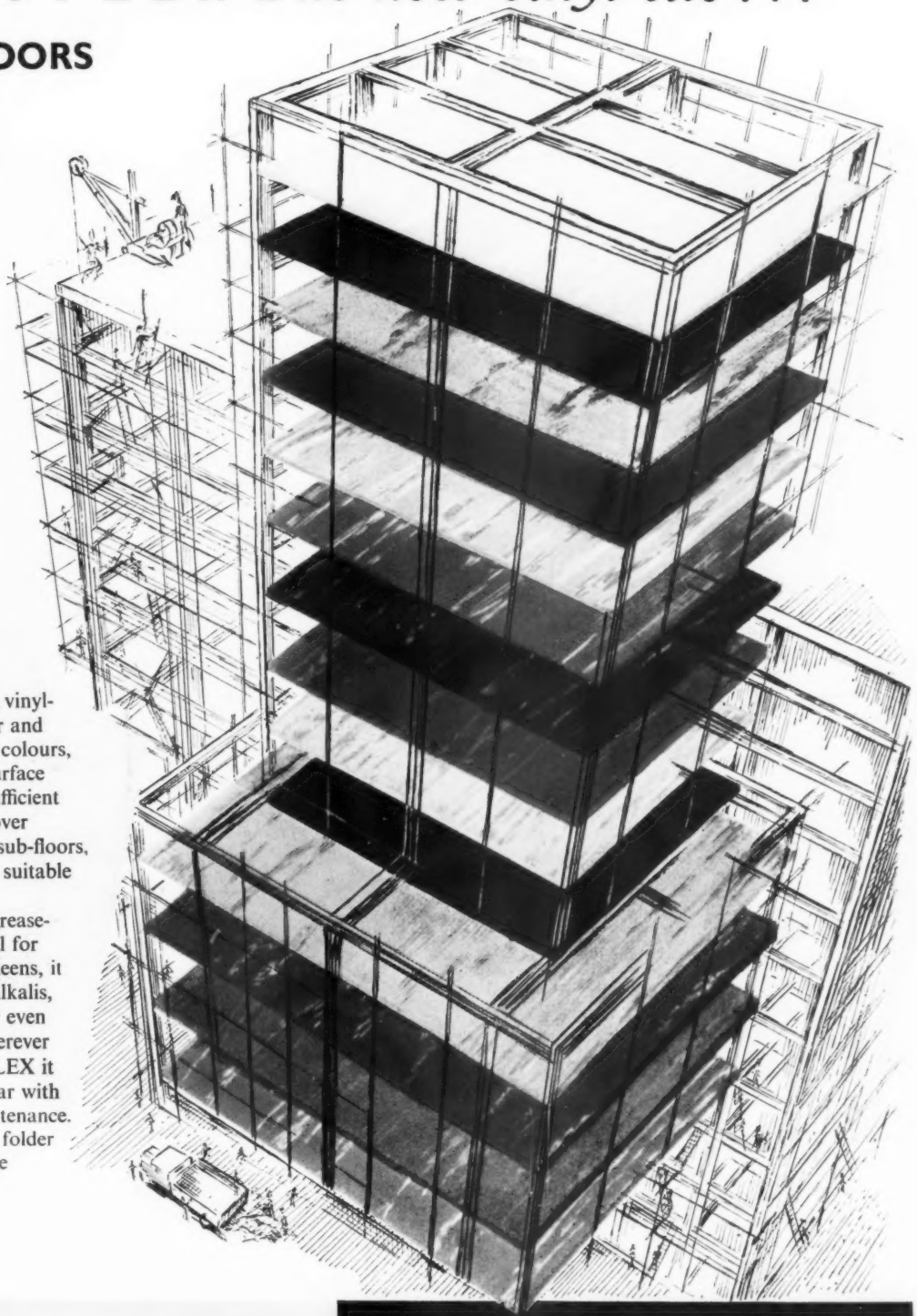
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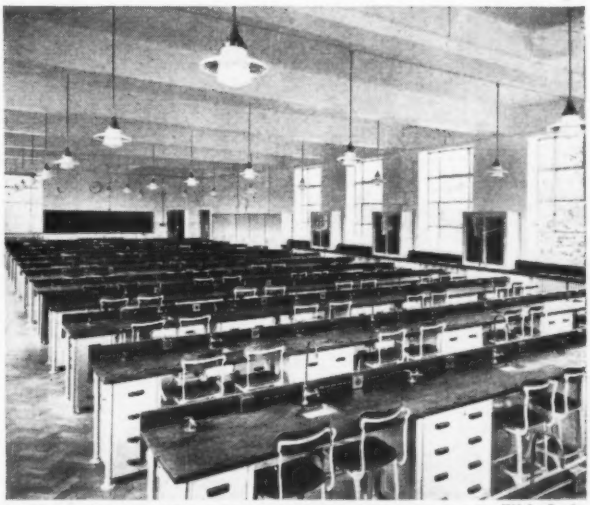
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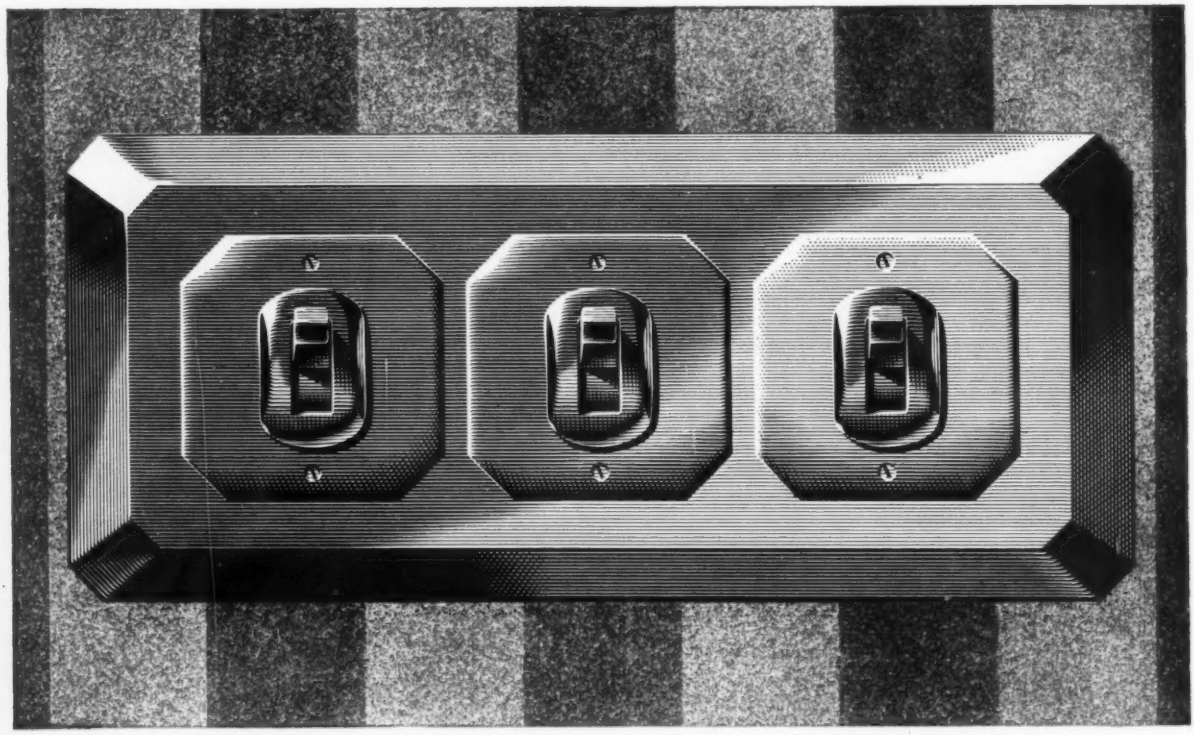
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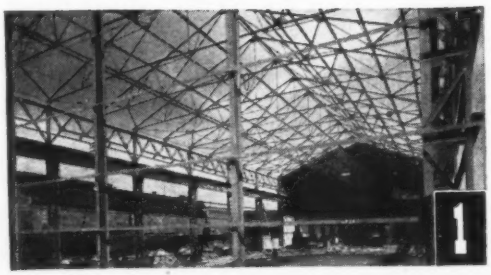
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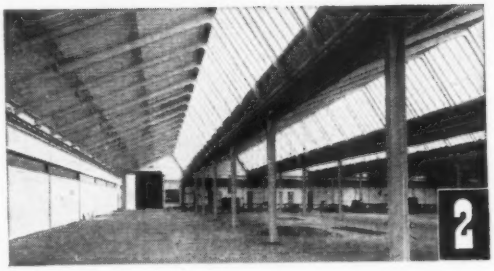
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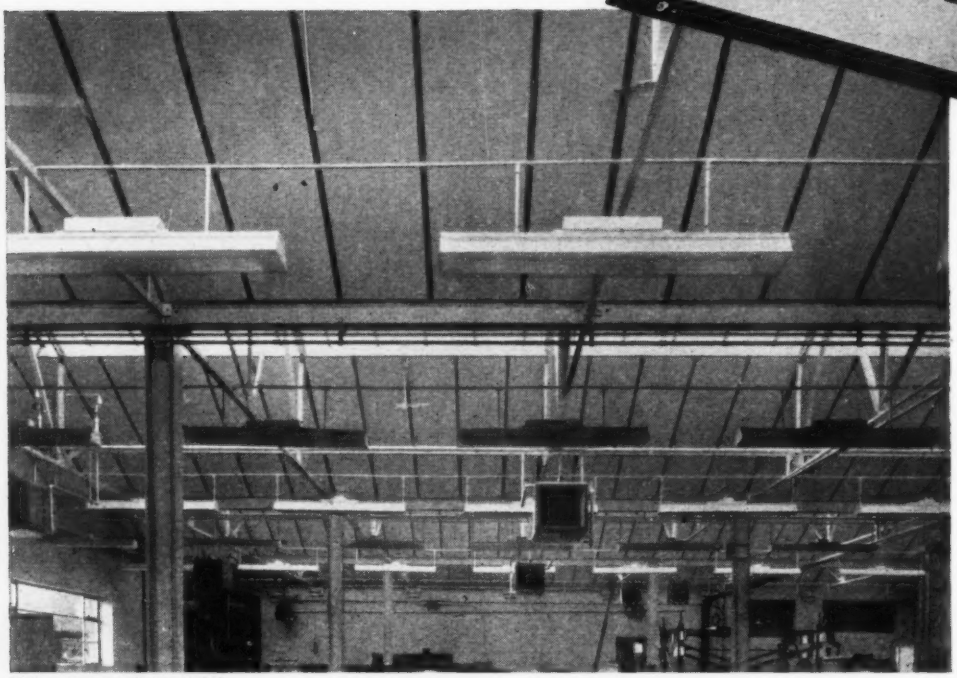


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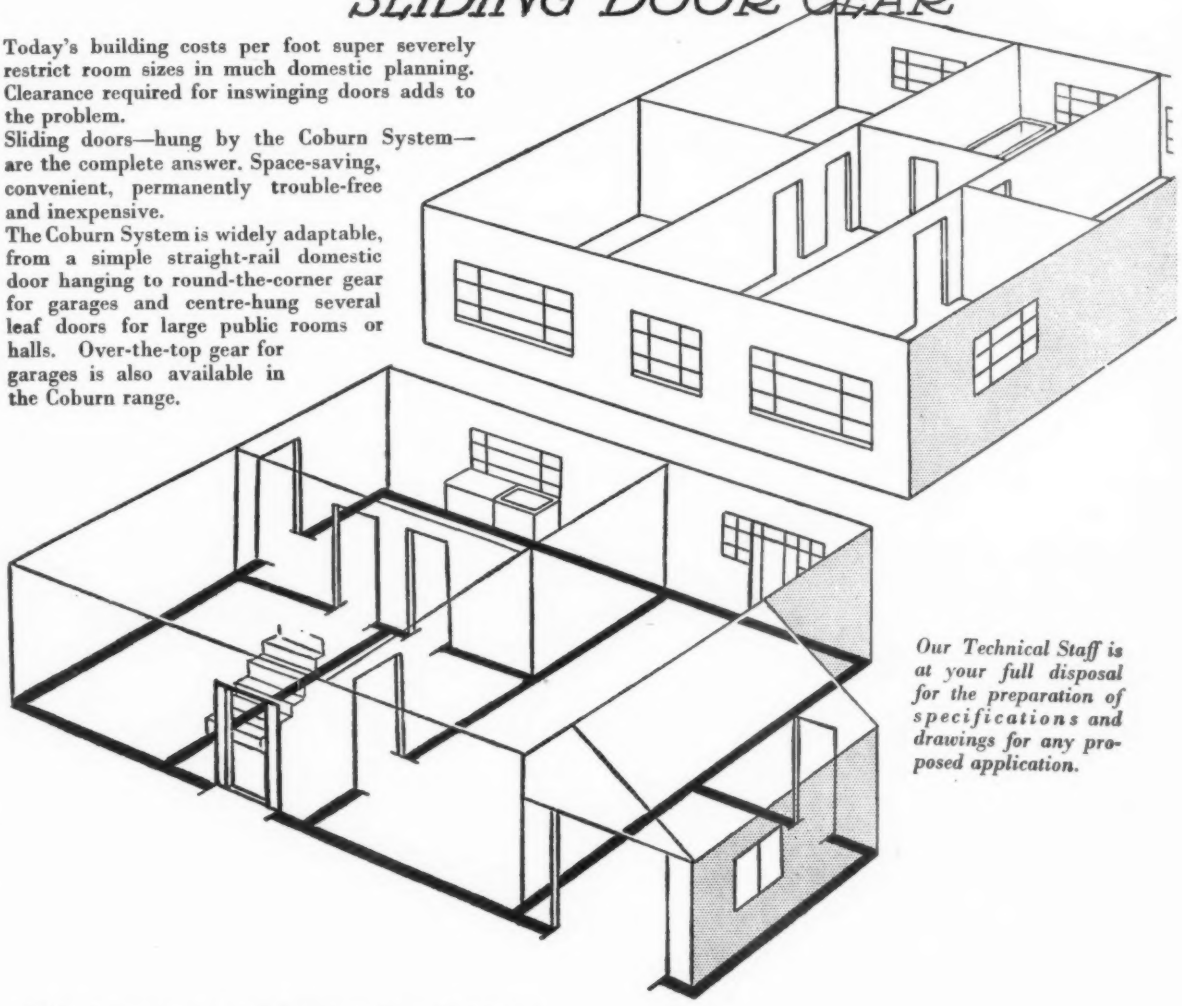
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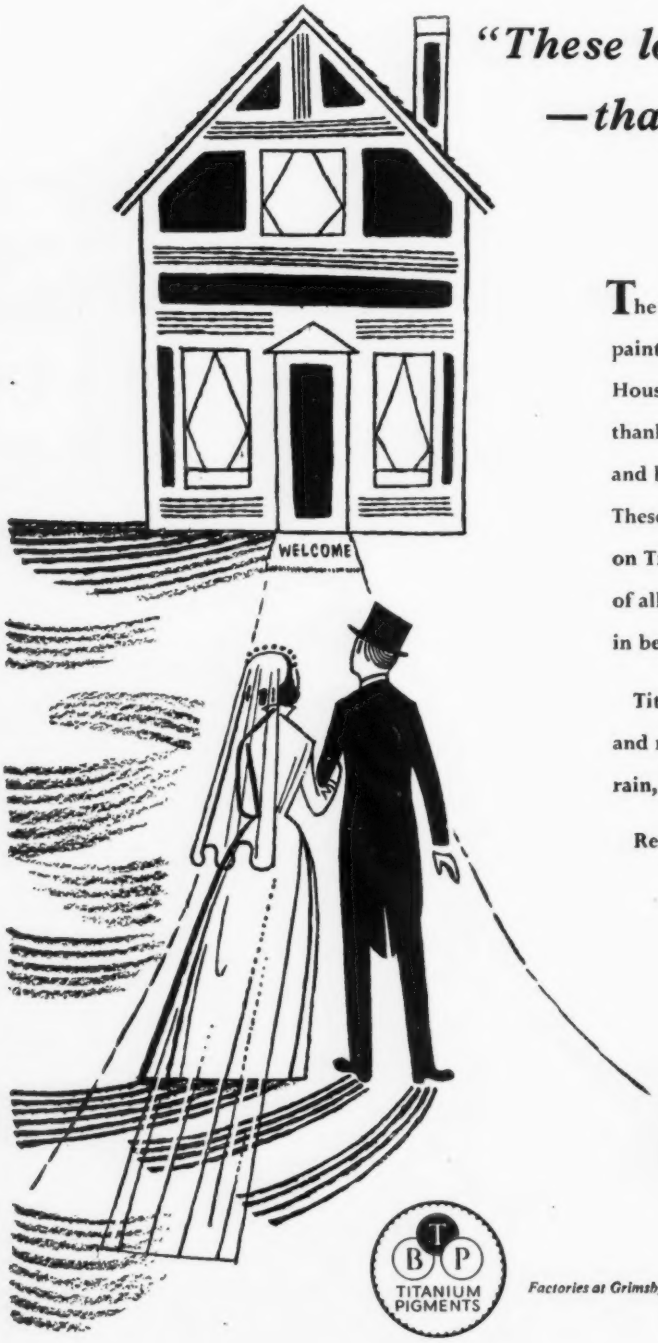
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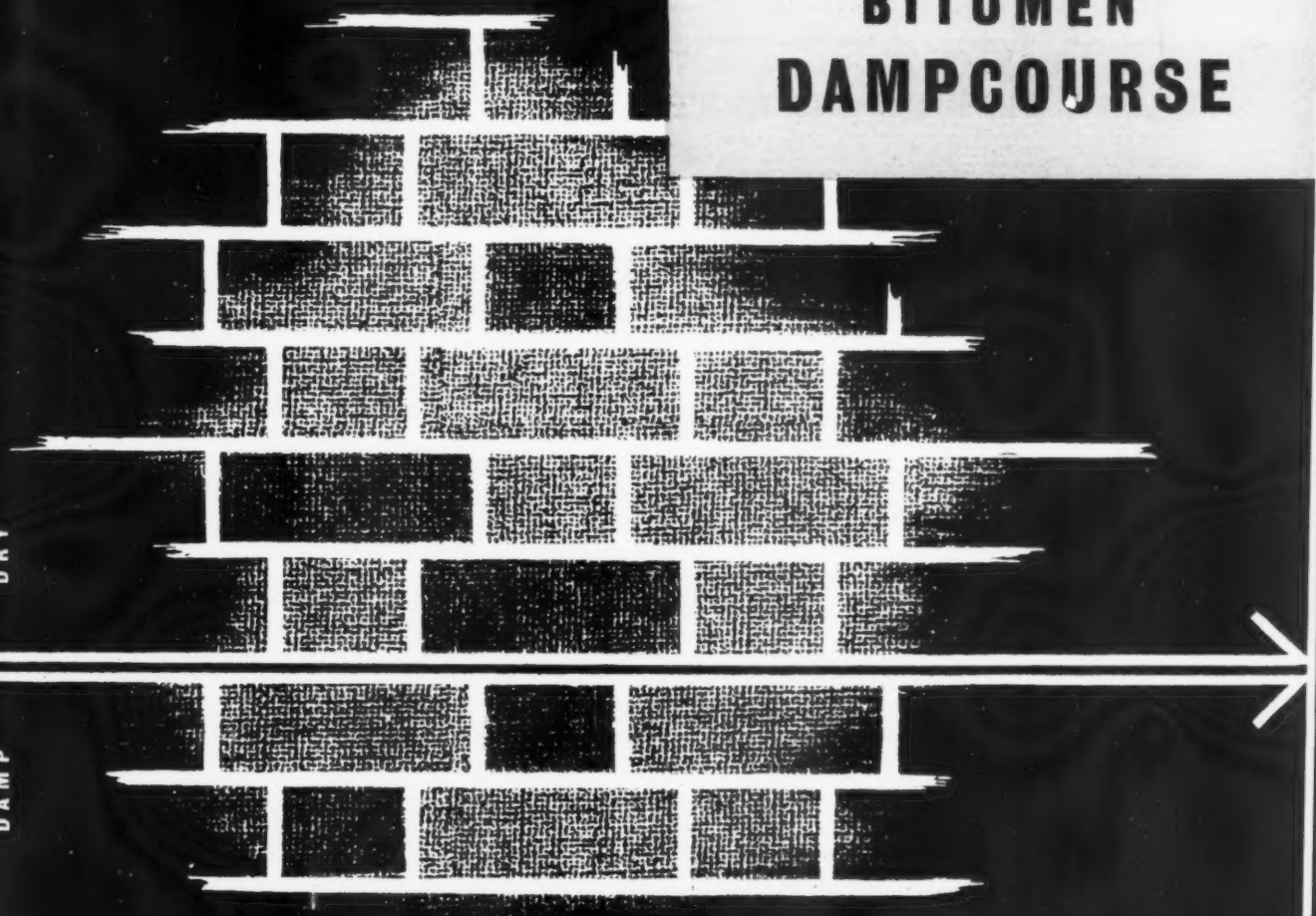
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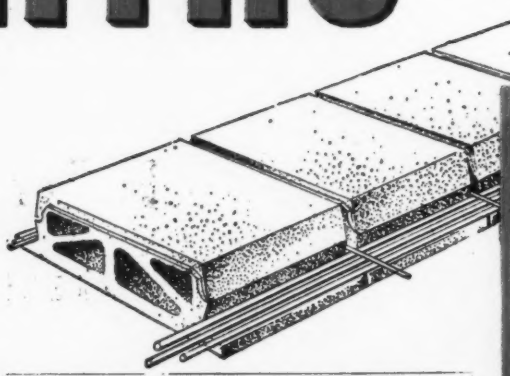
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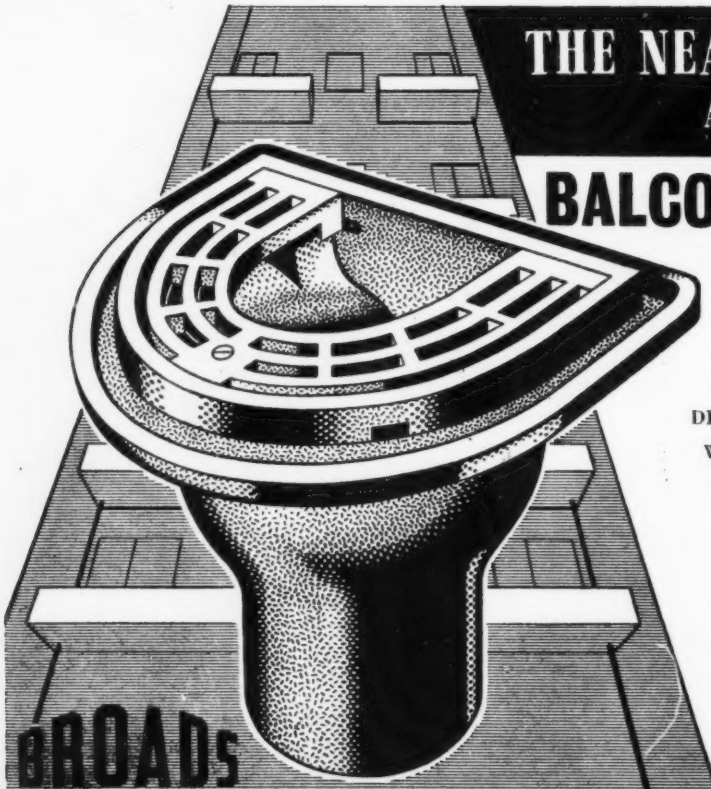
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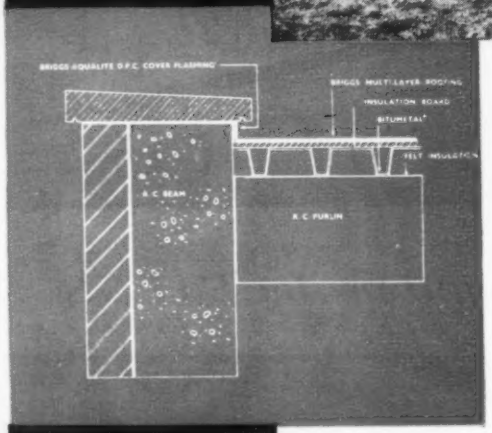
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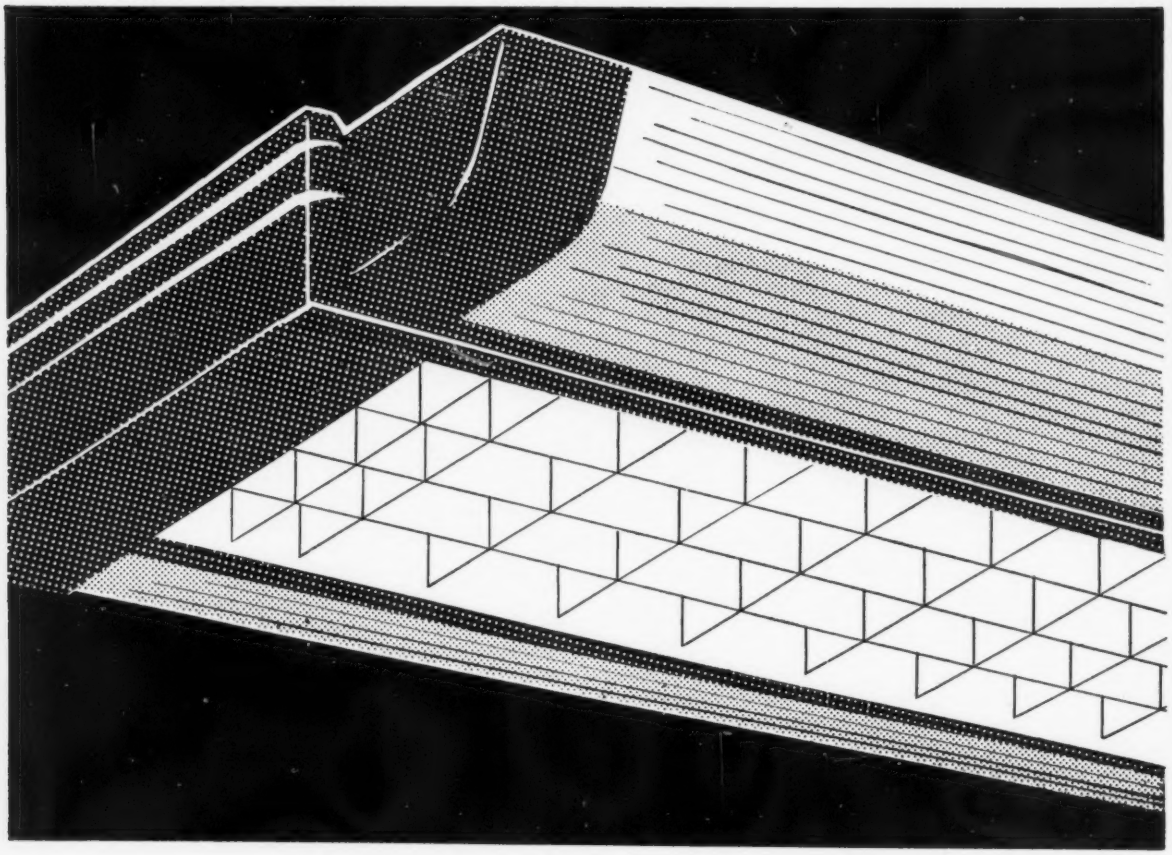
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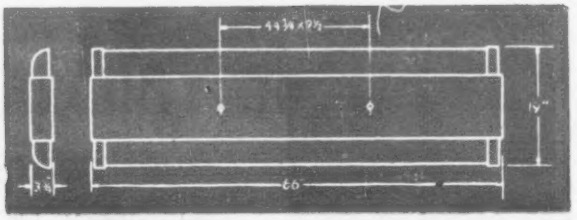
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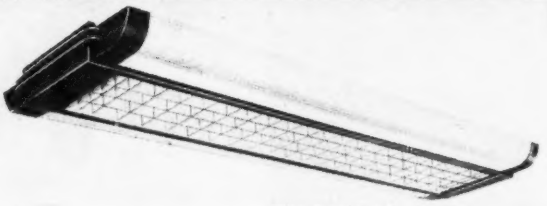


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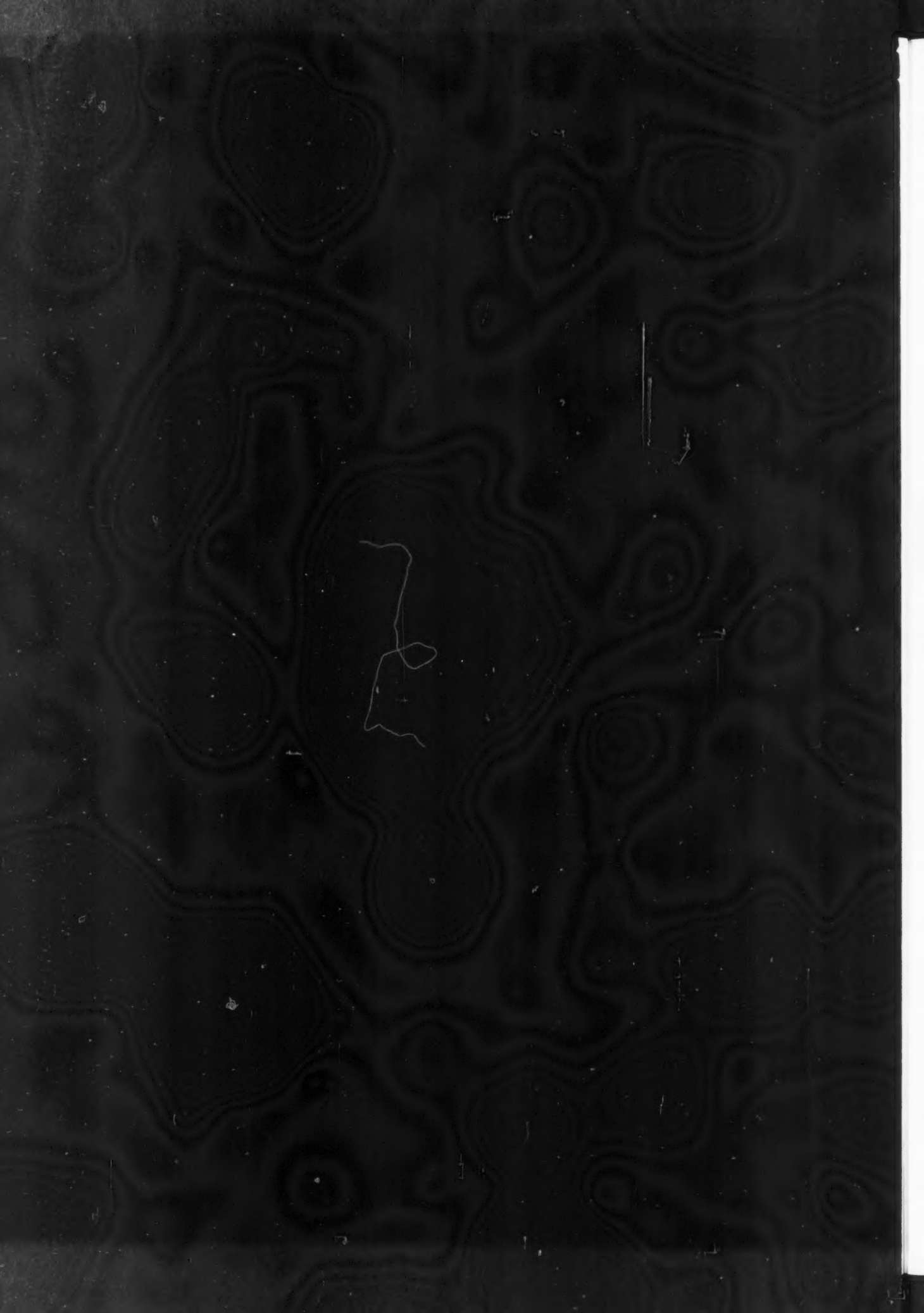
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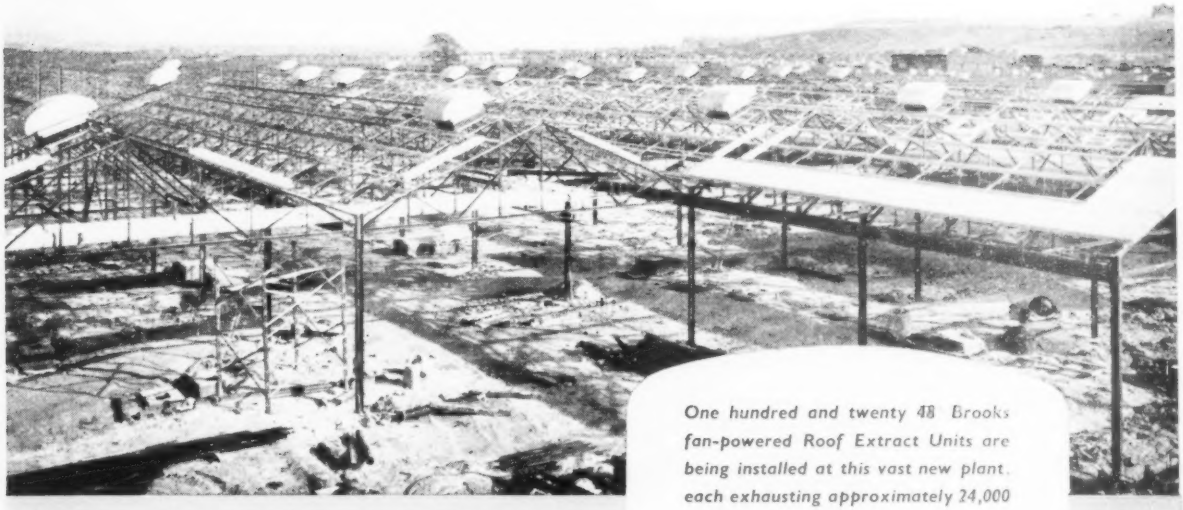
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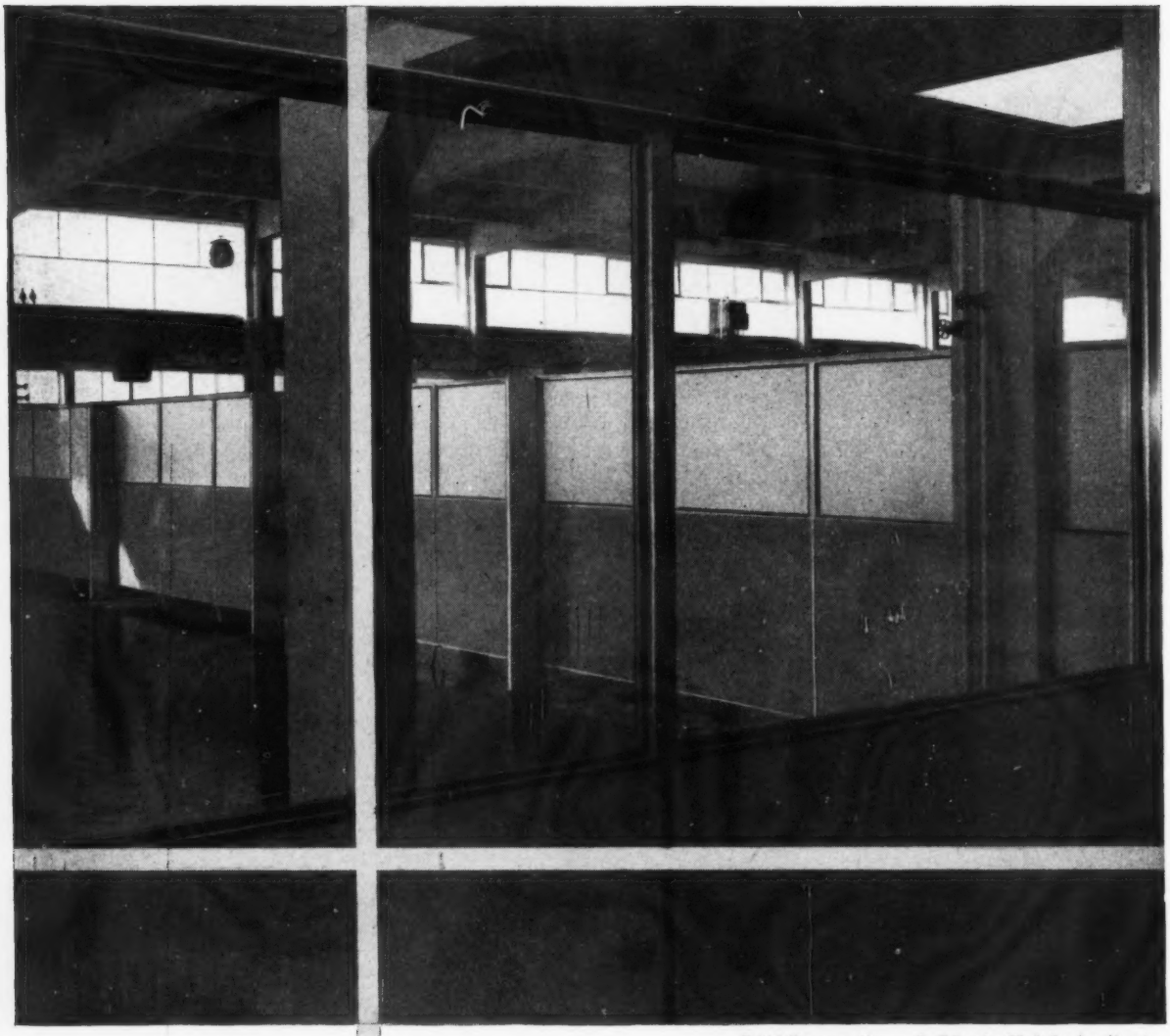
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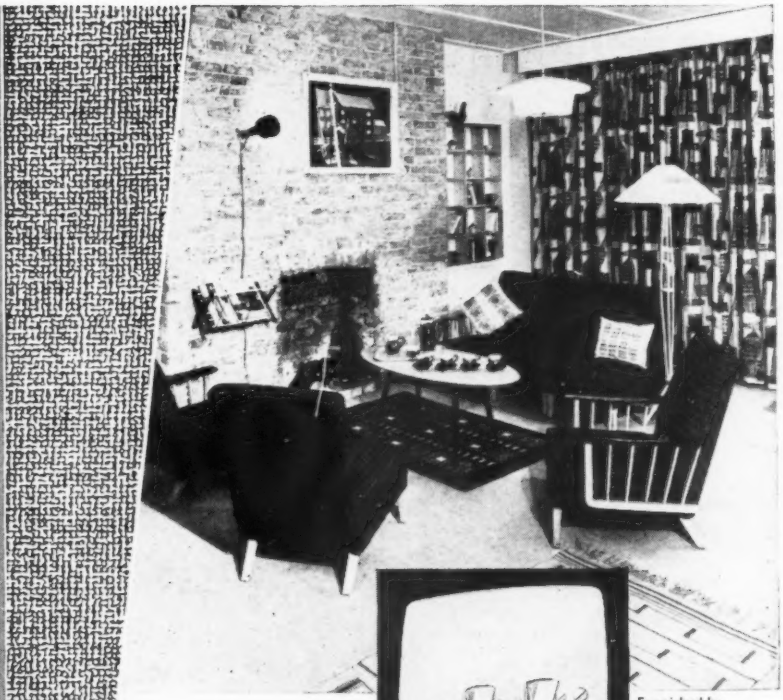
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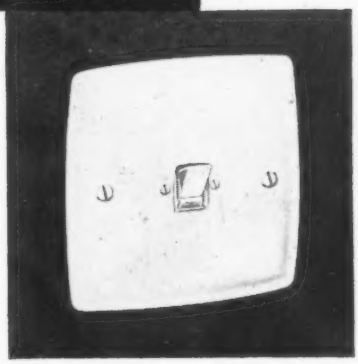
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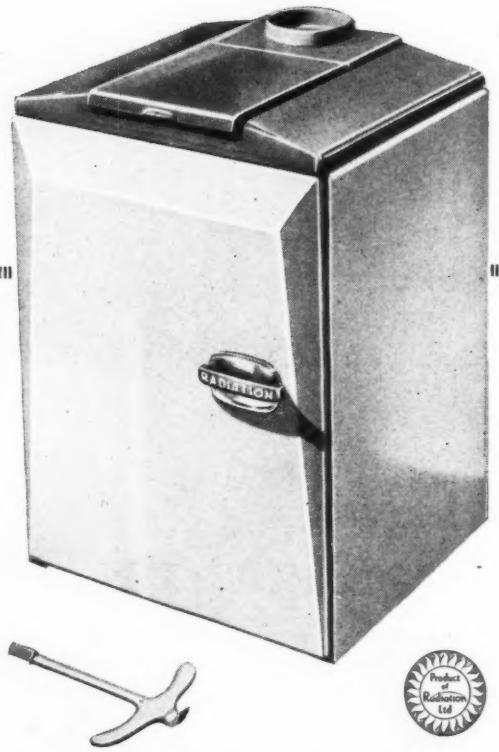
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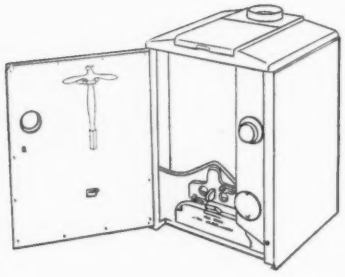
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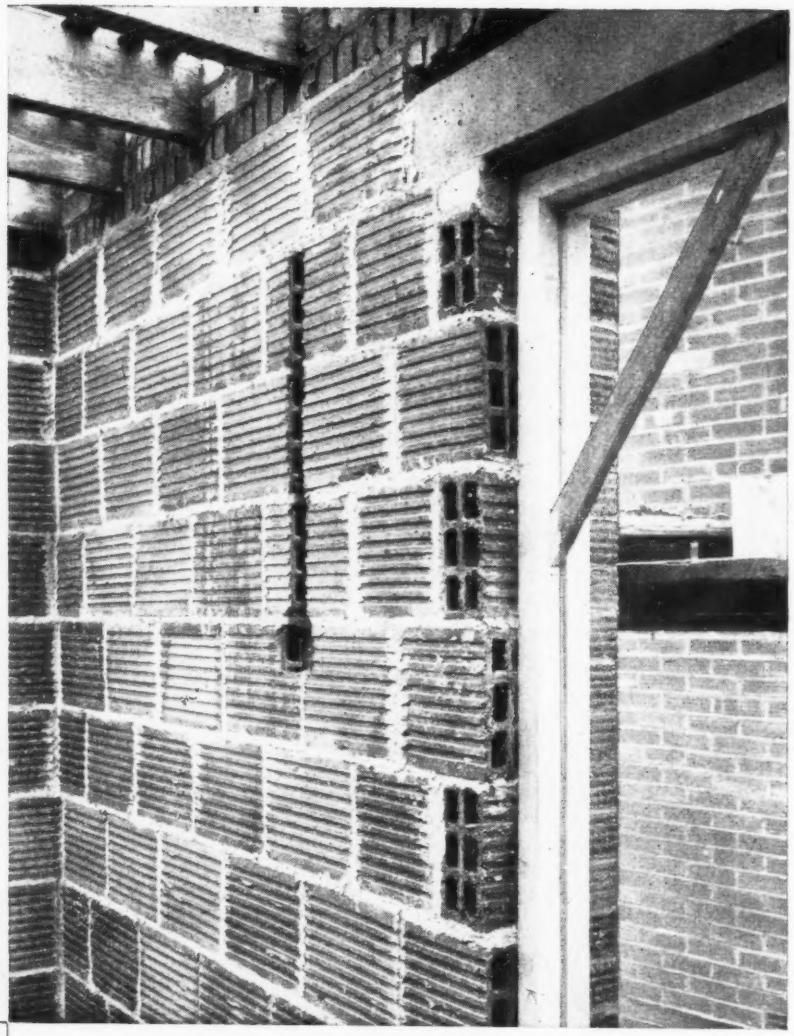
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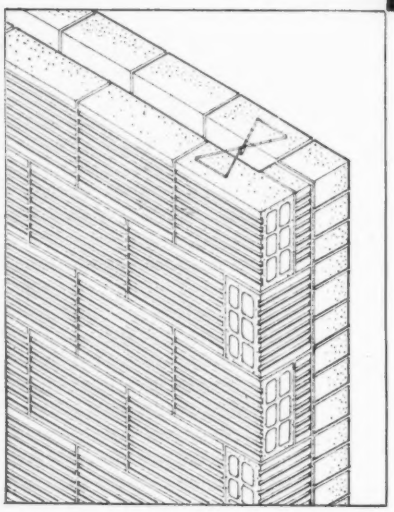
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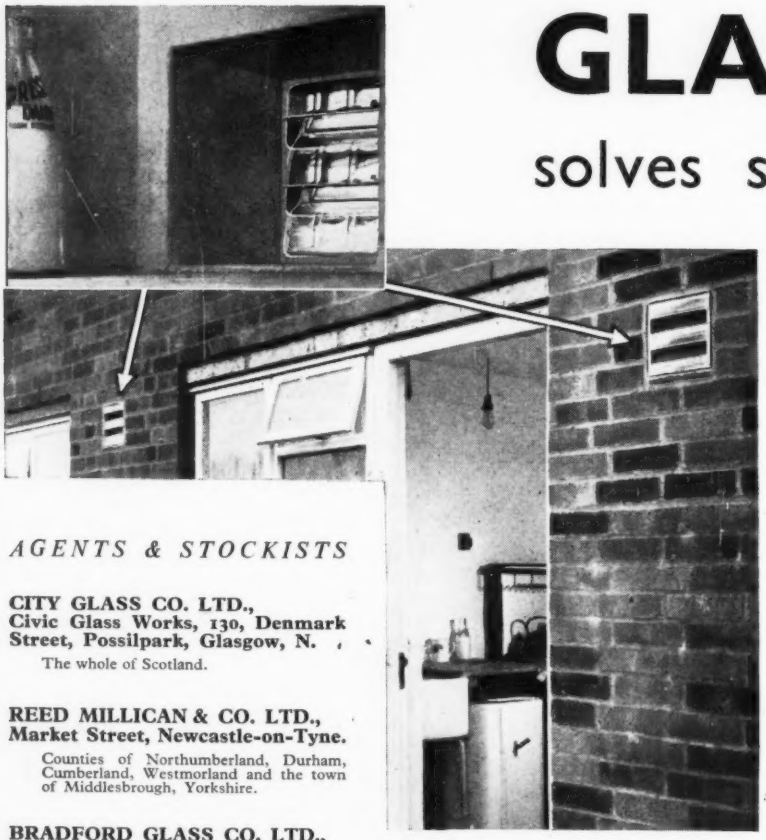
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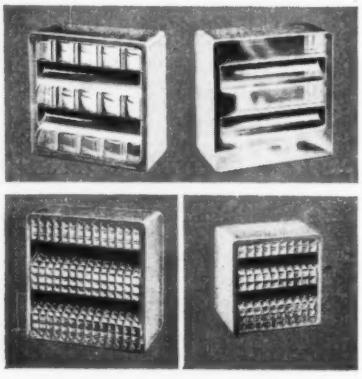
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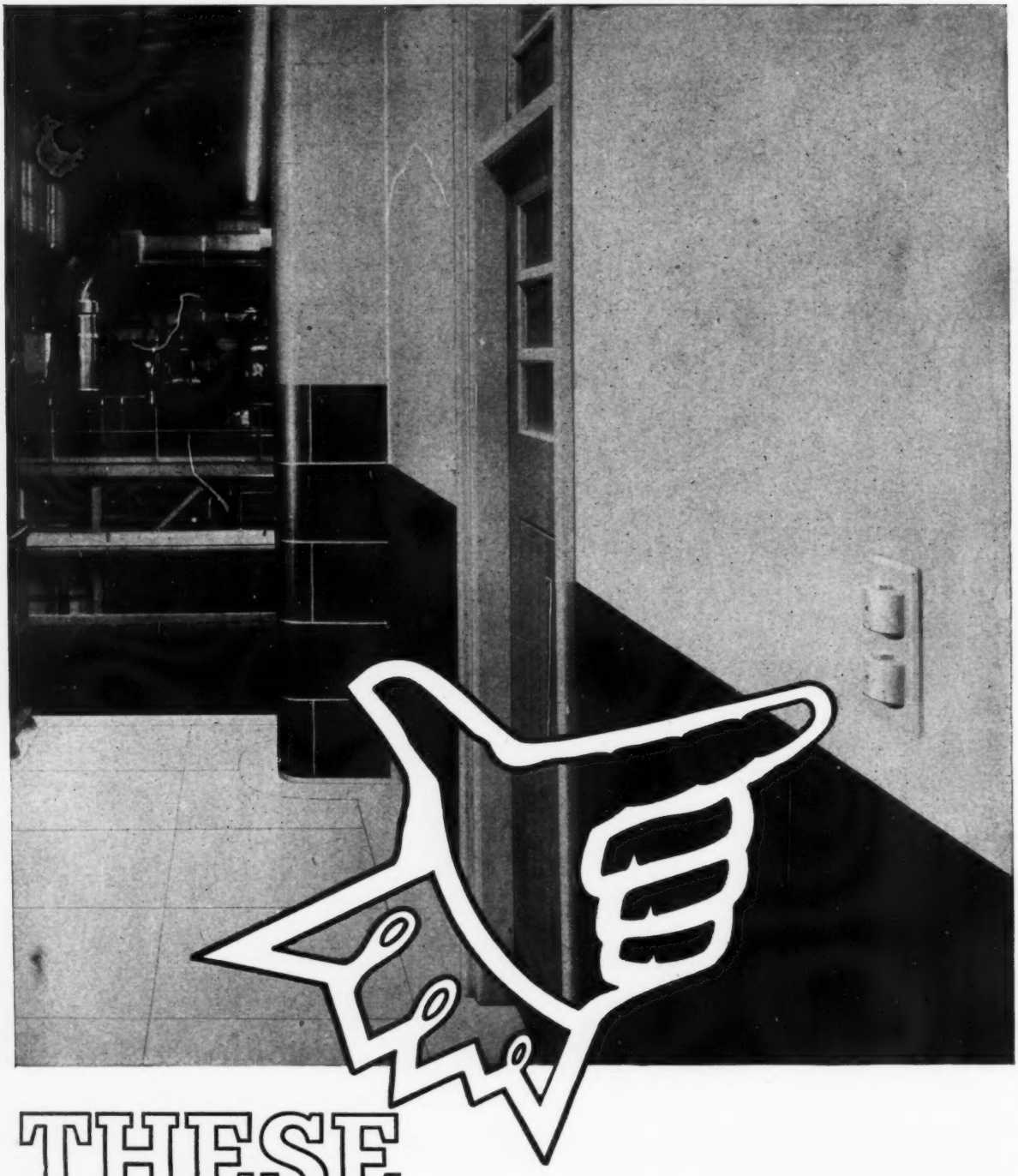
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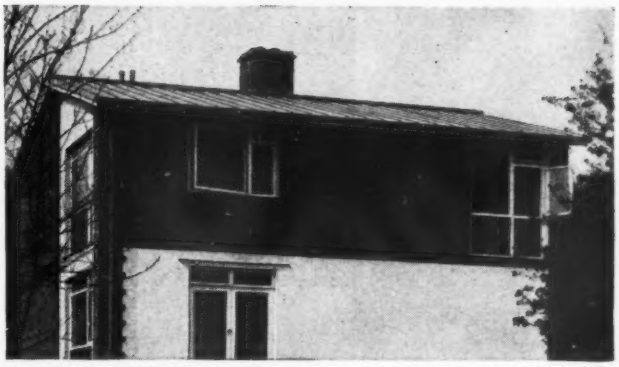
These illustrations show an interesting example of Italianized zinc roofing applied to a modern house. By this system, the sheets are factory formed: site work is cut down to a minimum, and roofs can be rapidly covered.

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View showing contour of Italianized sheets.

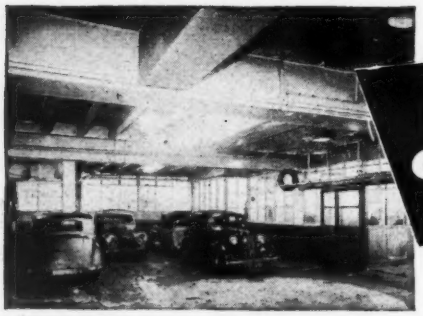


Flashing round chimney stack.



Detail of verge apron.

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Garage with conventional lighting. Note the confusion of beams, pipes, trunking, wiring and light fittings.

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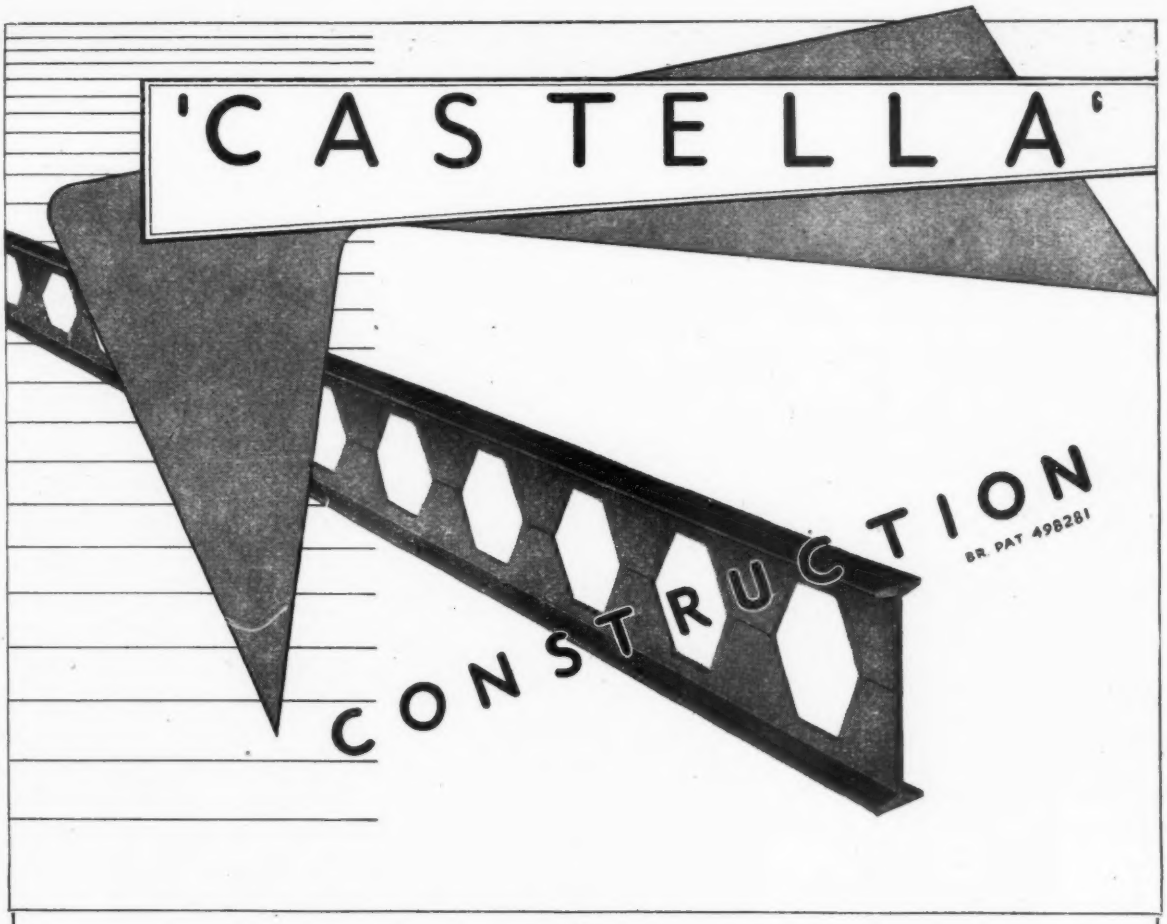
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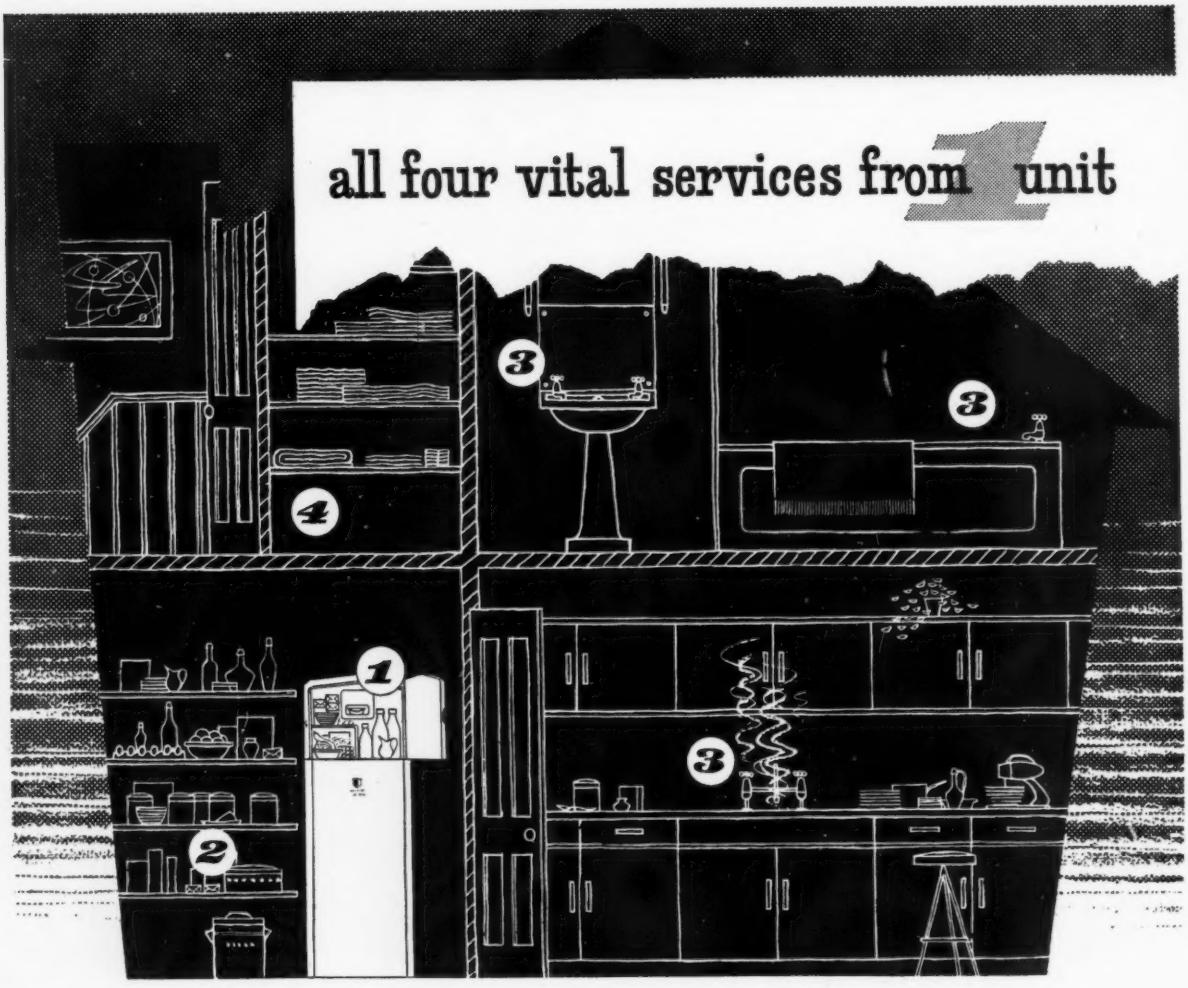
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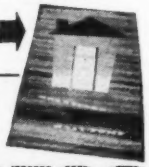
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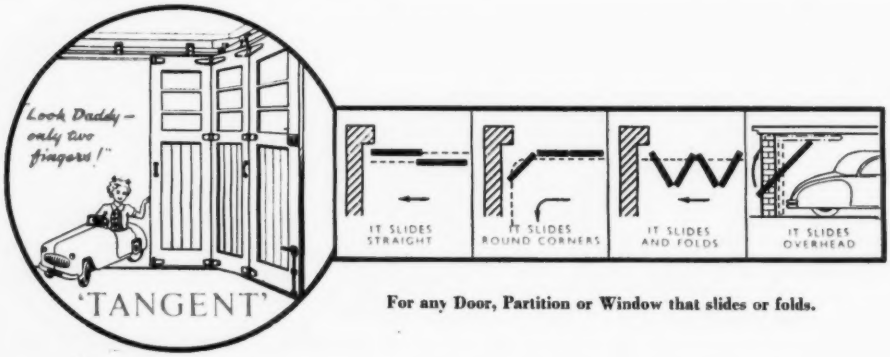
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TIME TO THINK

Architects, it is frequently said, never stop learning. They are students even to the grave. Unfortunately they are usually kept so busy earning a living that they rarely have, or make, the opportunity for settling down for a moment to put their store of knowledge into order. So those busy student minds remain for ever cluttered with miscellaneous information. The situation is made worse nowadays by the way every architect is deluged with paper—the printed word—in every conceivable form from catalogues, and digests to, one must reluctantly admit, this weekly column.

*

The JOURNAL editors are proposing to provide an opportunity for an architect to help himself, and thus his fellow architects, by means of the Research Foundation announced in this issue. The Foundation, ASTRAGAL gathers, is to provide a sum of money to enable a mature architect—that is, someone in his late twenties or thirties, not someone just newly-qualified—to spend six months or so sorting and straightening out one aspect of the vast store of knowledge which every architect is expected to have at his finger tips.

*

It has often been pointed out that there is virtually no *architectural* research by qualified men taking place outside BRS and the Nuffield Investigation. No Universities sponsor any, and neither does the RIBA—the senior body of the *learned* profession, save in the form of the Bossom Fellowships. So here is a modest start which may give some young architect the opportunity, without losing too much financially, to give himself time to think, and perhaps produce something worthwhile for the profession at large. It is to be hoped that some of the more enlightened architectural firms will realize the wisdom of releasing a man from the office for a few months for this sort of thing.

*

Having just commented on the appalling amount of work and reading an architect has to get through, ASTRAGAL feels that recognition should be made of the time being freely given by the members of the Board organizing this Research Foundation. All are extremely busy men in very responsible positions. Between them they cover nearly every aspect of architectural practice and research. The good fortune of anyone who receives an award through them is only equalled by the good fortune of the JOURNAL editors in having such erudite advisors.

AT THE CINEMA

Twice recently ASTRAGAL has been dragged to the cinema for the good of his mind rather than the titillation of one or two senses. On the first occasion he saw two short films titled Development of the English Town, and Planned Town, at the BC. Both were old films—at a guess, of immediate post-war vintage—and both were devoted to praising the virtues of garden-city planning. Truthful to the reaction of the time against squalid industrial towns, the films can hardly show the buildings for the trees, shrubs, and creepers all around. Is it not high time someone produced a film to show the delights of living in a town in the true sense of the word? Or does no-one live in them for pleasure nowadays?

*

On the second occasion ASTRAGAL saw three US industrial training films.* One was on time and motion study, another on the importance of selling and the third on how to run a committee meeting. (There, in 70 minutes' viewing time, was the essence of commercial America.) None of the films had anything to do directly with architecture and building, but the lessons they put across were of universal application, the technique of filming was competent, and the points were neatly made. One viewer at least returned to study his office with narrowed, suspicious, probing eyes.

* On hire from the G.B. Film Library

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It is slowly being recognized that this country has not sufficient brilliant teachers to go round. One would have thought that even a dull instructor could get very much better results if he taught with the support of first-rate educational films. The film allows the brilliant lecturer to be available to all. What is it, therefore, that prevents more use being made of films, particularly in the building industry and at architectural schools? In a primarily visual subject as architecture it is surely most appropriate. What has the Films committee of the RIBA to say? Has it a policy for the co-ordination of educational films on building?



Frozen Music. See note in third column.

RUSSIAN ARCHITECTS

Visits by Russian architects to England, once even rarer than trips the other way round, are now becoming more frequent. As reported in last week's JOURNAL, a number of Russians, including I. I. Loveiko, the City Architect of Moscow, are now looking at British post-war building. They have been to Glasgow, Crawley, the Building Centre, the LCC's Wandsworth flats and Westminster's Pimlico estate. In return V. Kucherenko, vice-chairman of the Council of Ministers of the USSR, invited some of the architects, builders, councillors and so forth whom they had met, to a reception in the Russian Embassy last Friday.

*

One of the JOURNAL'S editors who was asked, describes the reception thus: "An entrance lobby, bare of furniture save for some racks for hats and coats and a desk, led into a carpeted, panelled hall decorated with three portraits in oils of Molotov, Bulganin, and, full-length, at the top of the stairs—Stalin. The buff and white painted reception room beyond was simply furnished: a huge table covered with food, two smaller tables for drinks, gilded, *putti*-based lamp standards, a clock, a vast china urn and an even vaster crystal chandelier, and little else.

*

"Densely packed around the table were the poor starving English, stuffing away as much caviare, ham, lobster and vodka as the conversation permitted. After considerable efforts I managed to be introduced to the City Architect, I. I. Loveiko. He is short, slight, sallow, and extremely likeable. Save for square-toed shoes he is in appearance almost English, so that it came as a slight shock to find we could not comprehend each other, and had to impose, to the limit of good manners, on my part, on a First Secretary as interpreter. Loveiko admires most our town-planning—he mentioned Crawley—and our two-storey housing. His only comment on the LCC flats were that they seemed expensive. He had not heard of the MOE's development work, although he saw the JOURNAL regularly.

*

"It seems that not only language separates us. The Russians would seem to judge buildings from a fundamentally different angle—why, for instance, do they ask Phillip Powell when looking at his Pimlico flats: 'how many tons of steel, cement, bricks, do you use?' At any rate, more time than an evening reception permitted was necessary to find a common approach—save for Loveiko's final words: 'We architects are international, as builders, as erectors,' interpreted the First Secretary: 'politicians are unnecessary.' How right he is."

*

Bearing in mind the language difficulty, and the average Englishman's incomprehension of modern architecture, one wonders how these trips are organized. To whom does the Foreign Office go for advice—the RIBA? One would like to think so. For reasons ASTRAGAL has not yet discovered, the Russians apparently visited Glasgow. While there, they spoke to a labourer and discovered that he worked only eight hours a day. When they asked if he earned enough in that time, the labourer innocently replied that his fellow-workers were all Communists and therefore wouldn't work longer anyway. There might be a moral here if you dig around. . . .

ICY KEYS

Having missed last week's TV programme "Architecture is Frozen Music," ASTRAGAL felt some compensation in discovering the photograph reproduced above. It appears in one of those gay Italian fortnightlies which prudent architects abandon on the airport bus so that mother-in-law will not get her hands on it. And the picture shows Victor Borge playing *How can I melt your Heart of Ice* on a frozen piano, which, apart from the hunting horn in *Baron Munchausen*, must be one of the best examples of frozen music there is.

BUILDINGS ON STAMPS

Since he wrote, in the JOURNAL for September 8, about the new £1 postage stamp, ASTRAGAL has discovered that so far only seven British buildings have been illustrated on stamps—in each case, of course, by countries within the Commonwealth. Windsor Castle—used on our latest £1 stamp—has been shown twice before. by Canada and most of the Crown Colonies. New Zealand has issued an air-view of Buckingham Palace, and the west end of Westminster Abbey. The Houses of Parliament were



Carl Milles

Carl Milles, the great Swedish sculptor who died last week at the appropriately monumental age of eighty, was not only one of the most widely admired artists of his generation, but also one of the few major sculptors of this century who really squared up to the problem of sculpture in architecture, sculpture in the open air, sculpture in anywhere but the studio and art-gallery. He worked with Tengbom on the Enskilda Bank; and his fountain figures, like this one at Göteborg, were all worked out to give the liveliest relationship between figure, water, building and sky. He had something of the mystique, as well as the prophetic look and the age, of Frank Lloyd Wright, which probably accounts for the high esteem he enjoyed—and still enjoys—in America, where he taught two or three months in most years at Cranbrook. Over here we have taken much less interest in him since the first phase of Swedish Modernism (the Stockholm Town Hall epoch) went out of favour, and in doing so, one suspects, we have failed to learn quite a number of things that his fountains could have taught us about space-making with insubstantial materials—lessons that are still valid even if we do not like the superficial qualities of his sculpture, or cannot be bothered to get to grips with his underlying sense of plastic form. (Photograph by Eric de Maré.)

shown by the Crown Colonies in their Victory issue of 1946, and New Zealand, in the same year, printed the dome of St. Paul's. The seventh and eighth, rather surprisingly, are Compton Castle, Devon, and Eton College, issued by Newfoundland. These are the birthplace and school of Sir Humphrey Gilbert.

*

None of these stamps, in ASTRAGAL'S opinion, is a particularly good design. Of those which attempt it, none succeed in the difficult task of resolving the two competing elements: the Sovereign's head and the building. The new British £1 stamps, which were criticized in this column on September 8, are much simpler, and therefore better, than the others mentioned above.

IRRESPONSIBILITY INDOORS

It comes as something of a shock to realize that the *Studio's* year-book of furnishing and decoration* has now reached the stage where it can call itself *Decorative Art*, vol. 45. Forty-five! The book is an institution. And so it should be, for it gives what is still probably the best international coverage of the minor arts of domestic decoration and furnishing that one can get for thirty shillings.

*

You might cavill at its general air of rather suburban cosiness, and at the rather arty quality of most of the examples chosen, but you should remember two things. Firstly, the book sets out to cover what actually exists and is on the market, and a closer inspection of its pages will almost certainly reveal that the particular pieces of furniture you happen to approve of personally are in there too. Secondly, if the atmosphere of most of this furniture is a bit arty by architectural tastes, then this is probably due to the abdication of interior responsibility that Ian MacCallum referred to in his recent talk on the Third Programme. If interior decoration appears to be the work of an entirely different race of men to the designers of the buildings which it fills—well, it is simply due to the fact that it is just that—and the fault is the architect's for leaving off at the internal wood-work, and not seeing the job through to the last carpet-tack and ash-tray.

**Decorative Art, 45.* Studio, 30s.

ASTRAGAL

POINTS FROM THIS ISSUE

Organizing your knowledge: the aims of the **AJ Research Foundation** below and on pages 409 and 414
Architects create **Subtopia** page 416
How to pay **less Income Tax** page 418
Heating in schools page 435

The Editors

RESEARCH FOR THE ARCHITECT

AS announced last week, the Architectural Press, in association with the JOURNAL, have decided to supplement existing facilities for architectural research by establishing a new Research Foundation. This Foundation will be administered by a Research Board, the distinguished membership of which is given overleaf. The purpose of this Foundation is to sponsor research which will be of direct benefit to the architect in practice. In particular, the research will be concerned with the organization of existing knowledge for practical application by the profession. The justification for this action is not far to seek, for it is axiomatic that in the long run the strength and social consequence of a profession depends on what it knows. If its knowledge—whether carried about in the head of each practitioner or readily accessible by him in his institutions—is noticeably defective, then the profession will not be listened to, its function will be more difficult to perform, and its rewards will be proportionately meagre.

Last May, writing apropos of " Building Research 1954," we had occasion to call building the " Cinderella of DSIR " for the reason that the resources of building research had not been increased in proportion to research of other kinds. This insufficiency affects the architect in a particular way since he has an overall responsibility for the state of building knowledge. It may be a sufficient excuse for the individual architect to say to a client " even BRS does not know the answer to your building problem." But if the problem is an obvious and pressing one the profession as a whole cannot give this answer: for the reply will come back " why hasn't the profession done something about it ? " But the architect also has a personal problem with regard to building knowledge, one which comes to him as the co-ordinator of building skills. Time and his varied responsibilities do not permit him to read every Research paper that comes to light: he needs the knowledge but he needs it in a ready, serviceable form. As a man he is no more able than his grandfather, but he has a job many times more difficult to do. Therefore he needs institutional help of an unprecedented kind. His knowledge must be digested and organized for him so that—if he is conscientious and only a little above average in intelligence—he can quickly incorporate it in his work. In other words, the organization of knowledge is as important for him as its initial discovery. This, in broad terms, is what the new Foundation will try to do for him.

AJ RESEARCH FOUNDATION

SPONSORED STUDIES FOR THE ORGANIZATION OF KNOWLEDGE

The purpose of the foundation

As described on the previous page, an AJ Research Foundation has been established in order to sponsor research which will be of direct benefit to the architect in practice. The research will be particularly concerned with the organization of existing knowledge for practical application by the profession. The purpose of the Foundation will be realized by the award of Fellowships to research workers who may or may not be qualified architects, and by the subsequent publication of this research in the AJ. The research will normally be carried out either as a post-graduate study at a school of architecture or at one or other of the existing establishments for building research.

The membership of the Board

In order to govern and administer the Foundation, a Board has been appointed by the Editors. The following notable architects, all distinguished for their work in public and private practice, in research, and in teaching, have very kindly agreed to serve on the Board: Professor Robert Hogg Matthew, William Allen, Richard Llewellyn Davies, Stirrat Johnson-Marshall, Cecil C. Handisyde, Michael Pattrick, William Henderson, Anthony Pott and Robert Gardner-Medwin. In addition, the Executive Editor and the Technical Editor of the JOURNAL will serve on the Board as *ex-officio* members. The members of the Board, together with a brief account of their careers, are shown below and on the opposite page.

Further statement by the Board

The Board is now preparing a statement which will contain details of the amount and duration of the award, and also a description of the subject which, in the Board's estimation, merits research at this time. This statement will be published shortly.

THE MEMBERS OF THE BOARD:—



Robert H. Matthew—architect in private practice in Edinburgh, and Professor of Architecture at Edinburgh University. Member of the Board of Architectural Education, the RFAC for Scotland, the Scottish Committee of the COID and the MOW Advisory Council on Building Research and Development. Architect to the LCC, 1946-53. Chief Architect and Planning Officer, Department of Health for Scotland, 1945.



William A. Allen—superintending architect at BRS, member of the Executive Committee of the RIBA Council. At BRS has studied acoustics, planning and density problems for urban areas. As deputy head of Physics Division, was responsible mainly for work on light, heat, sound and colour studies. Formed Architects Division, BRS, in 1953, and is currently working on international study of modular co-ordination.



Richard Llewelyn Davies—Director of the Division for Architectural Studies of the Nuffield Foundation. Member of the RIBA Science and Hospital Committees. Private practice, 1937-39, was followed by work with Professor Holford on war-time factories. From 1941-48, Research and Development Architect to the LMS, under Dr. Leslie Martin. Architect to Nuffield Investigation into the Design of Hospitals, 1948 to 1953.



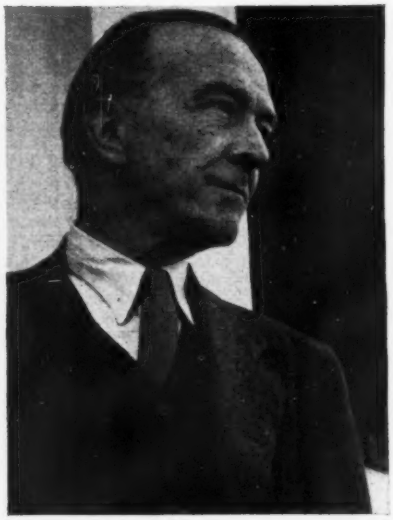
William A. Henderson—Architect in private practice as partner in the firm of Farmer and Dark. With Herts CC from 1946-51, working mainly on secondary schools. During the war in Royal Engineers. Pre-war worked with Grey Wornum and Michael Rachlis. Qualified from Liverpool School, 1937.



Michael Pattrick—Principal of the Architectural Association School of Architecture, member of the Board of Architectural Education. After the war became part-time teacher at the AA, and Director of Technical training since 1949. Became Principal in 1951. During the war architect to the Ministry of Supply and the Ministry of Aircraft Production. Pre-war in private practice and part-time teacher.



S. A. W. Johnson-Marshall, Chief Architect to MOE. Member of the RIBA Council, the Salaried Official Architects Committee, RIBA, and the UK Committee of the IUA. Previous to his present appointment he was Deputy County Architect, Herts. During the war was in Royal Engineers. 1938, Deputy City Architect, Coventry, under D. E. E. Gibson.



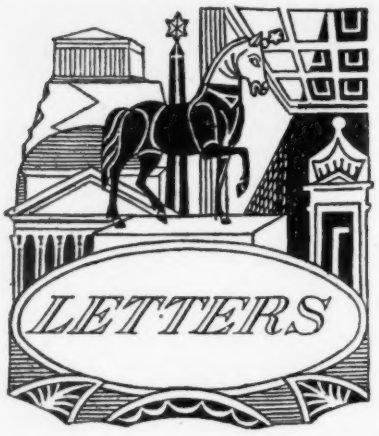
Anthony Pott—Principal Architect in charge of the Development Group of the Ministry of Education. Trained at the Architectural Association School. Pre-war was in private practice. During war worked until 1943 with G. A. Jellicoe for Ministry of Supply. Then went to BRS as advisor on the Burt Committee. Remained there until 1949, when he joined the MOE.



Robert Gardner-Medwin—Professor of Architecture, Liverpool University. Member of the RIBA Council, the Board of Architectural Education, the RIBA Science Committee and the UK Committee of the IUA. In 1944, appointed Town Planning and Housing Advisor to the British West Indies. In 1947, became Chief Architect and Planning Officer to the Department of Health for Scotland.



Cecil C. Handisyde—Architect in private practice. Trained at the Architectural Association school. Joined BRS in 1933. In 1934 with London Transport. From 1934-39, part-time teaching at the AA, and private practice in partnership with R. F. Jordan. From 1940-46, a senior architect at the BRS. Since then in private practice. Author of a number of Technical articles and books.



A. G. Green

Ian Douglas

W. C. Moss, Technical Manager of Coal Utilisation Council

T. M. Price

"Unbiased"

Halsall Owen, A.R.I.B.A.

C. J. F. Martindale, F.R.I.B.A.

Don't Tell Architects About Subtopia....

SIR,—Why do letters like Mr. Odell's in the JOURNAL for September 15 keep cropping up after all these years. Isn't it time the outlook was broadened—from the very top. Most architects, by their good fortune, know bad design when they see it, but must they keep telling each other in the "holier than the other bloke" tradition.

Thank goodness the Great British Public in its ignorance has not yet bought the ASTRAGAL strait-jacket. So please, a bit less of the perpetual state of shock and the horror pictures.

In 1955 surely we understand.

ANTHONY GASCOIGNE GREEN.

Stafford.

....They Create It

SIR,—I would like to write and thank you very much for your own Outrage issue, called "The Architects of Tees-side," even if the pictures were left to tell the story unaided.

As a layman, newly introduced to modern architecture, I had assumed that architects were struggling to create better standards against a morass of indifference in local authorities and general public alike. I now see that this is wrong; architects—with one or two exceptions—are as eagerly creating Subtopia as anyone else—and with much more opportunity than the average man, who in his lifetime can only drop a few tons of litter and commission perhaps two spec.-builders' houses.

There are obviously two things—architecture and what-gets-put-up. In the past the JOURNAL has illustrated architecture for perhaps fifty weeks in the year, and it has had no effect whatever on what-gets-put-up. May I suggest that in future it presents both, side-by-side on alternate pages, in the hope that these beaming-faced architects may unconsciously—in about twenty years' time—absorb a few details from the architecture on the facing page.

Alas, as far as the face of England goes, that will be too late. But who cares? Everyone will have had their 6 per cent., good or bad architecture regardless.

IAN DOUGLAS.

Canning Town.

Aim At Air-Tight Windows

SIR,—I was interested to read J. E. Jackson's letter "Aim At Air-Tight Windows" (AJ: September 15).

It is very true that unnecessary air flow through a room leads to very appreciable heat losses, since this air picks up warmth and carries it up the chimney as well as creating the sensation of draught in the process. I am sure Mr. Jackson will agree, however, that hermetically sealing both window and door can easily lead to an open-fire smoking into the room, since some air is essential to carry the smoke into the flue.

Fortunately it is possible also to tackle the problem of draughts in another way, by restricting the throat above the fire so as to reduce the demand for air from the room without decreasing the velocity necessary to carry the smoke away.

It is possible to purchase throat restricting devices for insertion into existing chimneys (perhaps in conjunction with some weather-stripping)—but better still is the use of a modern convector appliance with an adjustable restricted throat incorporated in it.

W. C. MOSS.

London.

SIR,—I feel that J. E. Jackson is trying to eliminate the symptoms while ignoring the cause. If he succeeds in his aims he will be faced with smoky fires and stuffy damp rooms. I would invite his attention to the fact that the fire is the cause of his draughts and that the cure is to (*a*) "convey" his draughts from the outside air by the shortest route possible to the fire, and (*b*) restrict the flow of air up the flue to the minimum necessary for the removal of the combustion wastes.

My experience is that if the house is built with timber windows to B.S. specification, and a lighted match is held to the window, the only draught that may be found is the cold air falling down the face of the glass.

I feel that we have not yet thought enough about double windows, of which the best I know is the EJMA Scandinavian type, but which has its limitations.

T. M. PRICE.

London.

Poaching : Is It Right....

SIR,—With reference to the recent correspondence about poaching, I feel that our collegues with official posts have been unfairly criticized. I can see no other way of building up a practice without doing work in one's spare time.

A point too that I think has not been mentioned, is that much private work is done by assistants like myself in the employ of architects in private practice, having the same object in view.

"UNBIASED."

London.

....Or Wrong ?

SIR,—I have been following with interest the correspondence on private practice by official salaried architects, and feel that Jeffrey Webb, in his letter in your issue of September 15, put the case very clearly.

There is one point in this connection which I have not seen mentioned, but which surely constitutes the proof of the matter: no architect in a position of responsibility—whether public or private—can down tools on his own job every evening automatically at closing time. Inevitably and frequently he must continue work either at the office or at his home in order to give specific problems the concentration they require, away from the distractions and interruptions of the normal office routine. How much less, then, can such an architect give time to private practice on his own account, without subtracting from the value of the services for which he is paid by his employer?

HALSALL OWEN.

Nr. Warrington.

Why Doesn't The RIBA Act?

SIR,—In your issue of September 15, Jeffrey Webb complains, by inference, of lack of action by the RIBA.

I imagine that few salaried architects in the employment of private architects would be allowed to engage in private practice, because they would then be competing with their employers.

In the case of salaried architects employed by local authorities, companies, ministries, etc., no such difficulty arises, and restriction of the employees' spare-time activities is likely to be regarded by most people as unwarranted interference. Indeed it is surely difficult for anyone to avoid the common sense in this viewpoint.

The RIBA evidently subscribes to this view, and although the subject has been repeatedly before the Council and the Executive Committee, the RIBA have not found it possible to suggest any action.

If the employing authorities were to be shown that spare-time activities of their staff reduced the efficiency of that staff, the authorities would sooner or later be compelled to prohibit such spare-time activities.

But to show that these spare-time activities were affecting the salaried employment, it would presumably be necessary to prove that work for private clients was being done within salaried office hours.

It is evident that the local authorities do not think that much of their time is being wasted, and they have also to be guided to some extent by the fact that the RIBA, our principal professional association, does and says nothing to decry this private work by salaried architects.

Surely it follows that unless the RIBA takes action, nothing further will be done.

My submission is that the RIBA, if it takes no action, will be negligent in its guidance of the profession.

I suggest that there is a clear case for the RIBA to add to the Code of Professional Conduct some stipulations to the effect that the acceptance of commissions from private clients for full architectural services, when already employed on a whole-time salaried basis, is incompatible with the status of the profession, and is acting unprofessionally.

How, for example, can the required professional standard of supervision, and the answering of urgent inquiries, be carried out when the workmen are only on the site during the hours when the architect is employed elsewhere?

I have written many times personally to the secretary of the RIBA, putting forward my viewpoint. I have "knocked at the door of No. 66," as Mr. Webb suggests. Shall we get anywhere unless the RIBA receives a thundering in support from all private architects?

C. J. F. MARTINDALE.

Carlisle.



RIBA

Three Coming Exhibitions

The RIBA is to have three exhibitions at its headquarters, 66, Portland Place, W.1, between now and the spring. The first, on the uses of pulverized fuel ash, will be held from October 14 to 21. It is being prepared by the Central Electricity Authority, which organized a similar exhibition some time ago. Whereas the last one was intended for the general public, this one will be designed to interest architects.

The second exhibition, which will be held in December, will be prepared with the help of the MOW. It will show architectural methods applied to the preservation of ancient monuments and historic buildings.

The spring exhibition, which will be the first in this country to show the work of Australian architects, will be provided by the Royal Australian Institute of Architects.

BUILDING

Education Board

The inaugural meeting of the Board of Building Education was held at the Institute of Builders, 48, Bedford Square, London, W.C.1, on September 20. The Board, which has been set up by the IOB with the support and collaboration of the NFBTE, to advise on methods and standards of technical education and practical training for executive, administrative and managerial positions in building, elected as its first chairman F. L. Wallis, president of the Institute. Harvey G. Frost, president of the NFBTE, was elected vice-chairman. The other members of the Board are as follows:—

Representating the IOB: H. S. Oddie, G. O. Swayne, William H. Lee, Harold H. Ridge, G. W. E. Airey, Gerald A. Hill, Laurence J. Holloway, C. R. Setter, and P. F. H. Wykeham.

Representing the NFBTE: F. M. Sleeman, F. S. Kennewell, W. K. Laing, D. E. Woodbine Parish, J. C. Robertson, A. C. V. Telling, and T. H. Huxley Turner.

It was decided to invite each of the following to appoint a representative to the Board: The MOE, the MOW, the RIBA, the Standing Committee of Vice Chancellors and Principals of the Universities of Great Britain and Ireland, the Association of Principals of Technical Institutions, the Association of Teachers in Technical Institutions, and the NFBTO.

A committee of study was set up to carry out a survey on a national basis of the present arrangements governing higher technological education and training of the administrative, executive or managerial grades in the building industry and the facilities now available to persons aiming at these positions.

The Board is to meet again on November 8, when it may consider the eventual appointment of an independent chairman.

HOUSE-BUILDERS

To Study US Builders' Designs and Layouts

How does the private house-builder in America design his housing and lay out his estates? That is what a team of British house-builders hopes to find out in its tour of the USA which begins this week.

The builders will also study matters which, unlike design and layout, are more their particular concern. They will, for instance, give particular attention to means of reducing costs. Other objects of the tour, according to the NFBTE, will be:

"To examine the organization and methods adopted by the private house-builders in the United States in regard to the promotion of the ideal of home ownership."

"To foster and maintain good relations between organized house-builders and estate developers and the appropriate body in the United States."

A report of the tour will be made to the council of the Federation of Registered House-Builders. The builders in the team all belong to the Federation, which is affiliated to the NFBTE.

EFFICIENCY

LMBA President States His Case

The president of the London Master Builders' Association, L. J. Holloway, has invited the BBC to send "a team of its writers and commentators to the presentation of the LMBA medals for 1955 by the American Ambassador."

Mr. Holloway gave this invitation at a recent LMBA regional luncheon, because he thought the BBC should have a chance of making amends for a recent broadcast play in which "it blamed an apprentice of sixteen for the death of a couple of pedigree heifers because, it was alleged, he dumped some empty paint cans in a stream . . . ; instead of putting them where he was told."

"Was there never," asked Mr. Holloway, "a butcher's or a baker's boy who dodged the column?"

Mr. Holloway said that the BBC's attitude was typical of the "constant niggling, and often ludicrous criticism" to which the building industry was subjected. "If a single man on a single job is seen drinking a cup of tea, the whole building industry is damned for incompetence," he said.

He believed that if the BBC sent a team to the LMBA medal presentation "then, perhaps, we shall have an end of this nonsense about the inefficiency and slackness which are alleged to be so rife in the building industry."

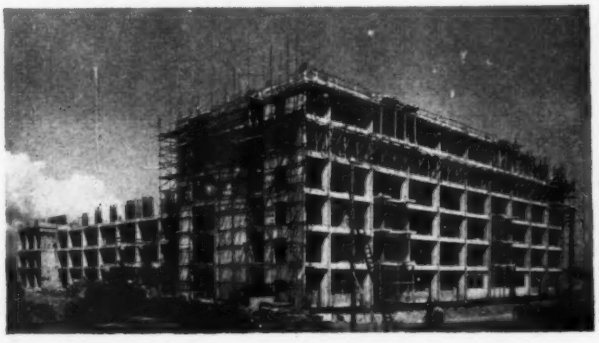
"Judge by results," Mr. Holloway concluded. "Look around you. These buildings—houses, factories, schools, churches—were not built by an industry which is incompetent."

ELMA

Lighting Conferences for Architects

The Electric Lamp Manufacturers Association announce they are resuming their pre-war conferences for architects. A series of three lectures, followed by discussions, will be held at their premises on October 20 and 27 and November 3. On the second evening, J. M. Waldram will be lecturing on "Planning to Achieve a Desired Lighting Effect"—a subject which he wrote about in the JOURNAL for July 22. This lecture will be introduced by Sir Howard Robertson, who opened ELMA'S first lighting conference for architects in 1933. Further details of the lectures will be announced in the JOURNAL'S diary.

Below: the North-West Hospital, Londonderry, under construction. This 500-bed hospital, which will cost £2m., designed by F. R. S. Yorke, E. Rosenberg and C. S. Mardall. The model right, which shows the appearance of the finished building, was previously published in the JOURNAL *for February 24, 1949.*





If you have an employed wife, a widowed mother, a building or two or/and an overdraft you are probably entitled to more income-tax relief than you suppose.

HOW TO PAY LESS INCOME TAX

By D. Compton James

In taxation there is a sort of No Man's Land in which can be found certain reliefs to which a taxpayer may be entitled if he re-arranges his financial affairs just a little. A learned judge once said that a taxpayer is entitled to arrange his affairs so as to attract as little tax as possible, but the Inland Revenue have never liked this dictum. Certainly the tax inspector will not give you any tips on how to re-arrange your affairs to the best advantage.

Anyone assessed on profits under Schedule D is entitled to employ his wife in his profession or business. The normal types of employment for an architect's wife would be as typist, office assistant, or book-keeper. If this be done, the wife being paid a wage for her services, the taxpayer is entitled to claim in his accounts as a deduction, the amount paid to his wife for wages. If the wife's earned income does not exceed £155, she herself will have no tax to pay on these earnings. If her earned income exceeds £155, she will pay on the first £100 of taxable income at 2s. 6d. in the £, on the next £150 at 5s., and on the next £150 at 7s. Thus, on a wage of £668 the wife would pay £102 10s. in tax, whereas if this amount were assessed in the husband's earnings he would have to pay between £240 and £300 on the same amount of income—more if he were a sur-tax payer.

For the average small professional man, the best plan is to pay the wife £3 a week. This saves tax on £120 and at the 9s. rate the annual saving is £54. The qualifying conditions for this relief are that the wife must be genuinely employed in the business, that she must be paid a regular wage, that the wage shall be commensurate with the services rendered, and that the wage so paid must be recorded in the books.

It would be asking for argument and contention, for instance, if an architect claimed to pay his wife £10 a week as a typist when the local rate for such assistance is only £6 per week. However, even this difficulty can be overcome if the wife is made an equal partner in the business by means of a partnership deed. For an architect such a partnership would only be reasonable if the wife herself was also an architect.

If the wife's wage exceeds £3 per week, she is treated for tax purposes as an ordinary employee; a tax deduction card is prepared for her and PAYE tax is deducted from her wages every week. In the case of a partnership between husband and wife, PAYE does not enter into the matter.

Sons (or daughters) who allow their widowed mothers to live rent free in the old home can claim total or partial relief from property tax. This is the commonest example of the secret relief known as beneficial occupation of property. You may read the Income Tax Acts all day, every day, for a month of Sundays, without finding any mention of this relief. Strictly speaking it is not a relief at all, but a method of charging tax on property that is occupied rent-free. In certain circumstances it may become a relief.

The basic rule is that where a property is occupied rent-free, the net annual value of the property is regarded as the income of the tenant, and tax is charged on it according to the tenant's circumstances. It is not even necessary that there should be any relationship between the parties. Cases do arise in which a tenant becomes a "beneficial occupier" almost by accident. This position is common in the licensed trade, when the brewer fixes the rent of a tied house at a figure below the true rental value. The Schedule A assessment on a public-house may be £100 although the tied tenant's rent is only £30. The difference of £70 forms part of the tenant's income according to income tax practice, and it is chargeable at the tenant's rate of tax, which is usually lower than the brewer's.

Coming back to the case of the son who allows his mother to live rent-free, the relief arises because the mother's taxable rate is almost invariably lower than the son's. Hence a charging provision becomes a relief: no wonder you couldn't find it in the Income Tax Acts.

Many taxpayers run small overdrafts at the bank. Perhaps because the interest on the overdraft is usually concealed in a pass-book debit with the legend, "Bk. Chgs. & Int." or something even less understandable, some taxpayers do not realize that they are making a payment which reduces their assessable income. Others hesitate to approach the bank, possibly because of a somewhat naive diffidence about being "in the red." Actually, all banks will issue a Bank Interest Certificate quite as a matter of course. All the taxpayer then has to do is to forward the certificate with a receipt for tax paid (for the same year, of course) and in due course he will receive a refund. This relief can be obtained for the past six years.

Surprisingly little use is made of the provisions under which property owners can claim an additional allowance for repairs, etc. To do this, the taxpayer has to prove that over a period of five years his average cost of repairs is greater than the flat-rate allowance given by the Inland Revenue in making the Schedule A assessment. For large estates the additional relief may amount to as much as £20,000. Even the small owner-occupier who takes a pride in his house is likely to be surprised when he tots up his expenditure on repairs. It should be borne in mind, if you own several properties, that you cannot single out just one for a maintenance claim. All your properties have to be included.

Architects are particularly likely to be in a position to make maintenance claims, because as a class they spend more than the average on the upkeep of their houses. Also architects who are dealing with plans for large alterations, can point out to their clients that the possibility of a maintenance claim on part of the expenditure exists.

The Dependant Relative Allowance now stands at £60 and the income of the dependant must not be more than £85, which means that any dependant who has something besides the Old Age Pension is often disqualified for this relief. In any case the allowance of £60 is small compensation for a taxpayer in the higher income brackets who makes an allowance of, say, £5 a week to a relative.

The answer in these cases is to legalize the allowance by means of a 7-year annuity deed. The taxpayer is then entitled to deduct the annuity from his income, thus saving income tax and sur-tax on it. When paying the annuity he deducts income tax at the standard rate, and the dependant then makes a claim for refund on the ground that his or her income is not large enough to pay the standard rate. By this method, the amount of saving varies according to what other income the dependant has.

While on the subject of Dependant Relative Allowance, it is not necessary that the dependant should be resident in this country. If the dependant is resident abroad, his income is calculated in local currency converted to sterling at current exchange rate. In the case of dependants resident in Australia or New Zealand, it should be remembered, in calculating the income of the dependant, that Australasian pounds are worth less than sterling pounds.

Life Insurance Relief is not by any means on the secret list; every taxpayer knows about it. Few taxpayers realize, however, that if they take out a "with profits" policy they are really getting double relief. A tax rebate is allowed on part of the premiums, of course, but at the end of the period—when the policy is paid—no tax is charged on the capital sum paid out,which includes profits. In any other form of saving with the exception of National Savings Certificates, tax is payable on interest or profits.

There are no special allowances for architects in respect of office expenditure, but where an architect has a study at his private residence, he can claim a fraction (usually one-sixth) of the rent (or annual value), rates lighting, heating, and cleaning of his private residence, as an expense in his accounts. Architects can also claim capital allowances for instruments and equipment bought, and this would include the purchase of a car.

DIARY

Contemporary Italian Handicrafts. Exhibition at the Italian Institute, 39, Belgrave Square, S.W.1.

UNTIL SEPTEMBER 30

The Sliding Door. Film. At Building Centre, 26, Store Street. S.W.1. (Sponsor: E. Hill Aldam & Co., Ltd.). 12.45 p.m.

OCTOBER 5

The Uses of Pulverised Fuel Ash. Exhibition. At RIBA, 66, Portland Place, W.1. (Sponsor: Central Electricity Authority.)

OCTOBER 14 TO 22

PRIMARY SCHOOL

at SUGAR HILL, NEWTON AYCLIFFE, COUNTY DURHAM

for the DURHAM COUNTY COUNCIL EDUCATION COMMITTEE

designed by G. R. CLAYTON, county architect

G. W. GELSON, deputy architect (education) in collaboration with

GRENFELL BAINES and HARGREAVES

assistant architects W. WHITE (design and details), R. BROWN (supervision)

consultants, heating, ventilation and water services, R. W. GREGORY and PARTNERS

The Newton Aycliffe County Junior Mixed School was completed in the autumn of 1954 and was the second stage of a joint programme for a Mixed Infants' School and a Mixed Junior School to be built on adjoining sites. These are the first schools to be built in the New Town of Newton Aycliffe, which is situated east of the Great North Road, about six miles north of Darlington. Until these buildings were completed the younger children in the New Town had been accommodated by a temporary school housed in a block of flats. The general contractors were G. Stephenson Ltd.; for sub-contractors, see page 442.

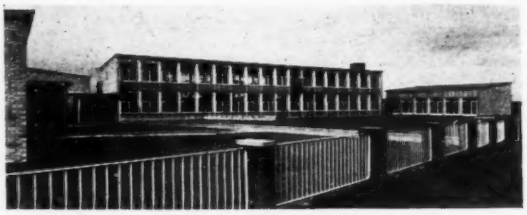
West elevation

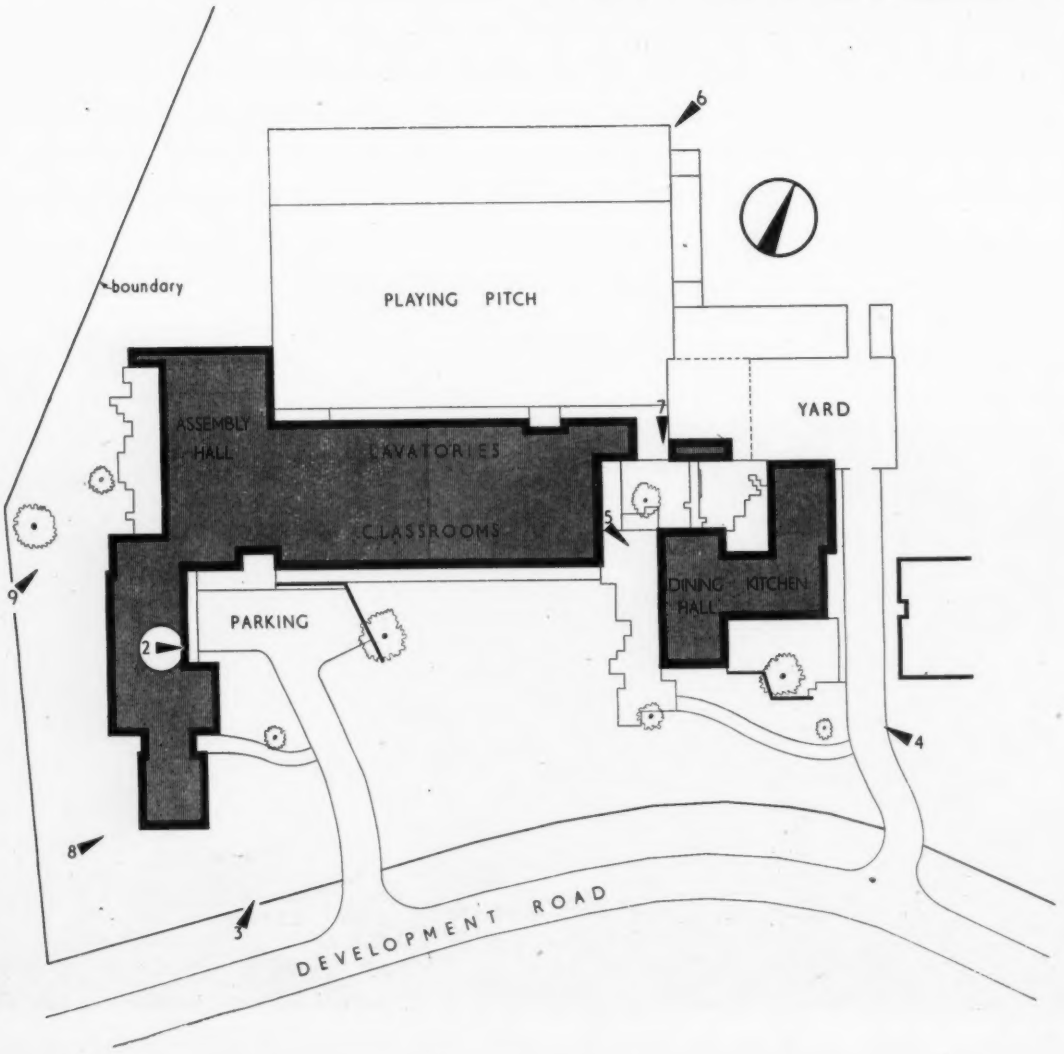




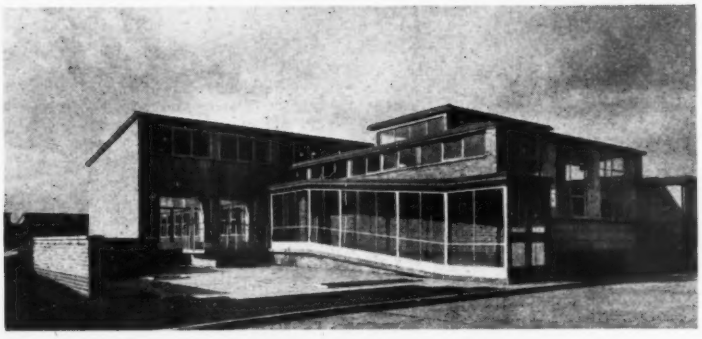
The schools were projected during the period 1950-51, and the steel shortage current during the design stage accounted for the load-bearing brick construction. Viewpoint 2, above, has been taken from the fully glazed corridor of the general purpose classroom wing, and shows the main entrance, with its canopy supported on a portal frame, the two-storey classroom block and the dining-room wing at its east end. The infants school is situated beyond the dining room and on a parallel axis to the classroom block.

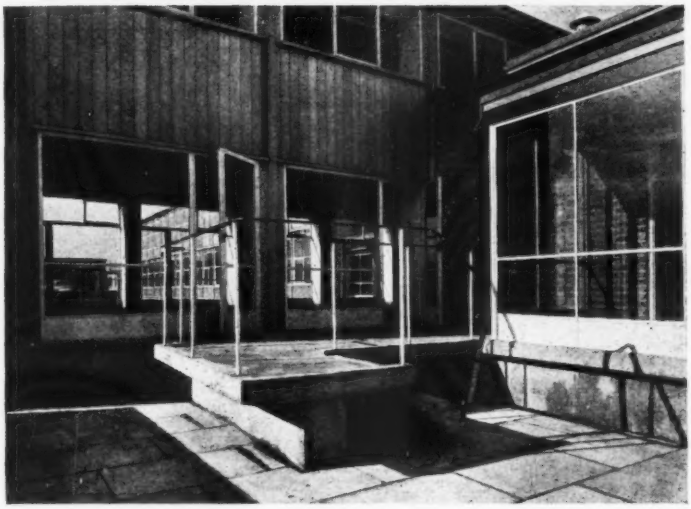
Below, viewpoint 3: the classrooms have a S.S.E. aspect, and face on to a quiet road of recently completed 2-storey housing. Facings were chosen for their weathering qualities and their harmony with the surrounding buildings. They are principally brick (warm grey sandy texture), pre-cast concrete and untreated cedar boarding. There are three areas of frost-proof coloured tiles on the classroom block. This block's suspended floors are of a patent pre-cast pre-stressed design, and are supported on load-bearing cross walls. The lightweight roof is carried by steel trusses spanning the depth of the block. Trusses are on loadbearing brick piers at 7 ft. 3 in. centres.





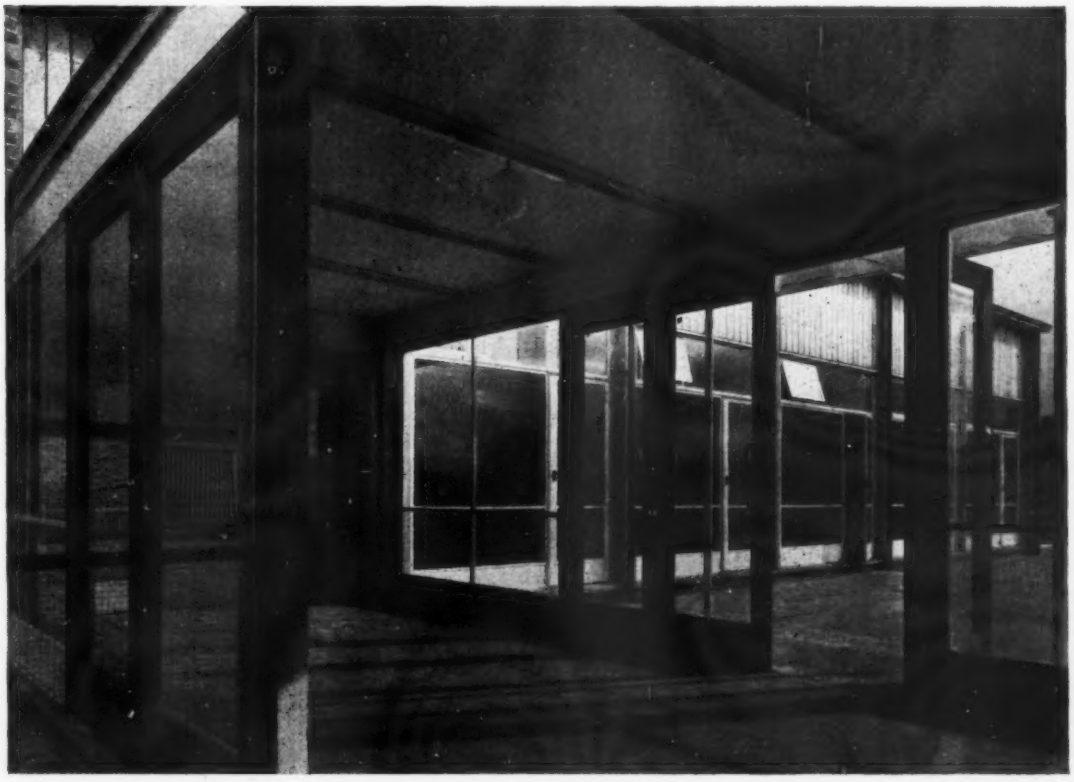
Key plan showing photographic viewpoints

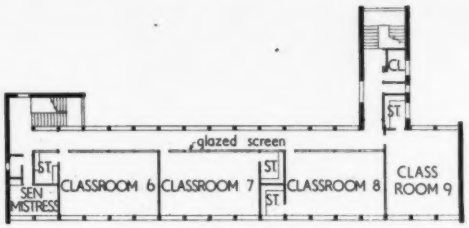




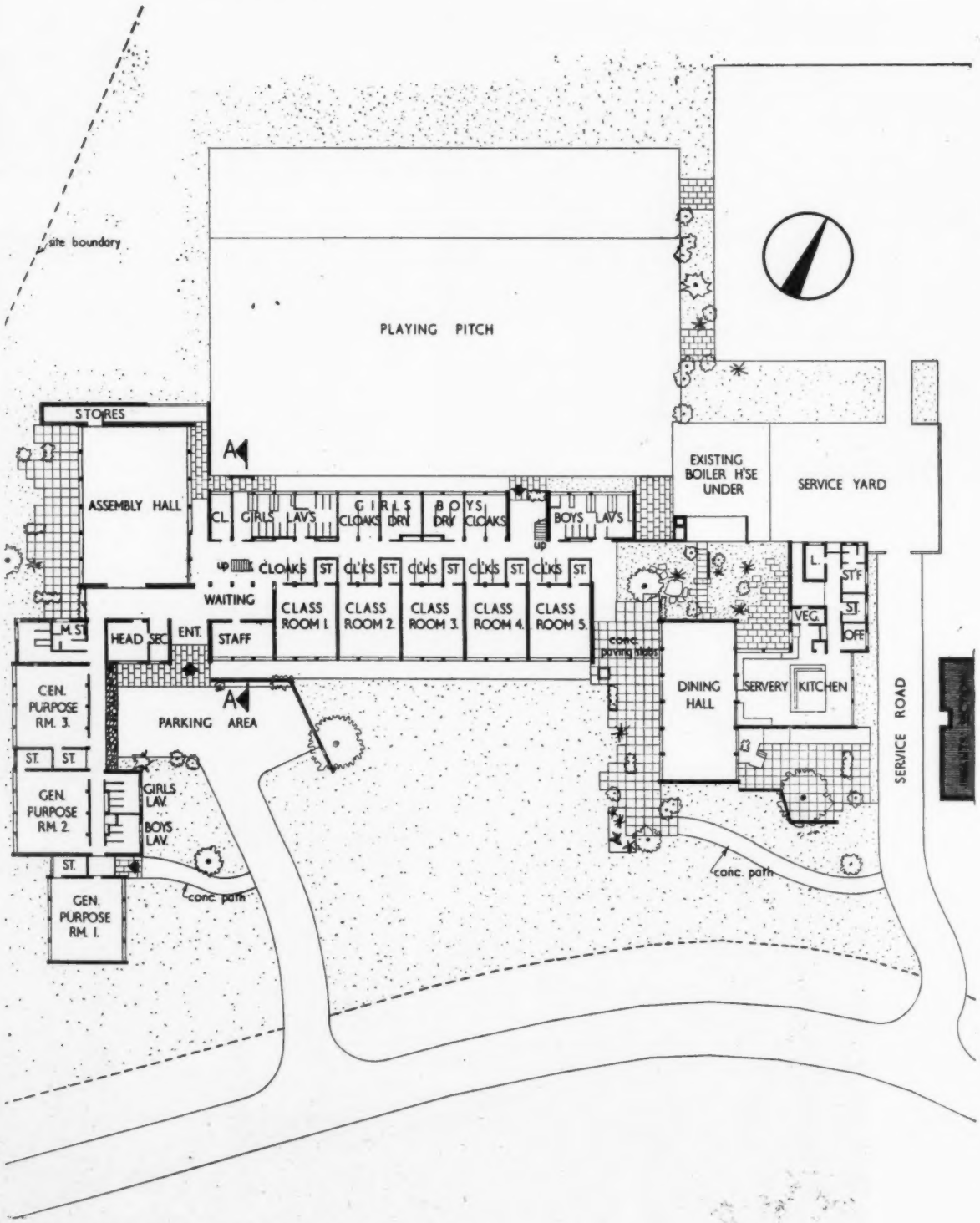
PRIMARY SCHOOL AT NEWTON AYCLIFFE

Above, from viewpoint 4, can be seen the dining hall and kitchen accommodation. On the left, the courtyard, later to be developed with planting, leads to the dining hall, which is 54 ft. long, 24 ft. wide and 16 ft. high at its ridge, the roof having single-pitch, lightweight steel roof trusses on brick piers, with a covering of 2-layer bit. felt on compressed straw board. The kitchen, to the right, is planned to serve 500 meals in two sittings. Originally, two dining rooms were planned, on either side of the kitchen, serving both junior and infants' schools, but a late policy change required the infants' meals to be transported by trolley from the kitchen to the infants' assembly hall. The covered ramp, seen to the right of the steps in the picture on the left, was built for this purpose. Below, viewpoint 5 looks from the link between the classroom block and the dining hall towards the west elevation of the dining hall. The glazed corridors are constructed from welded box stanchions, and have a paper-faced compressed straw board ceiling/roof with a washable water-paint finish.

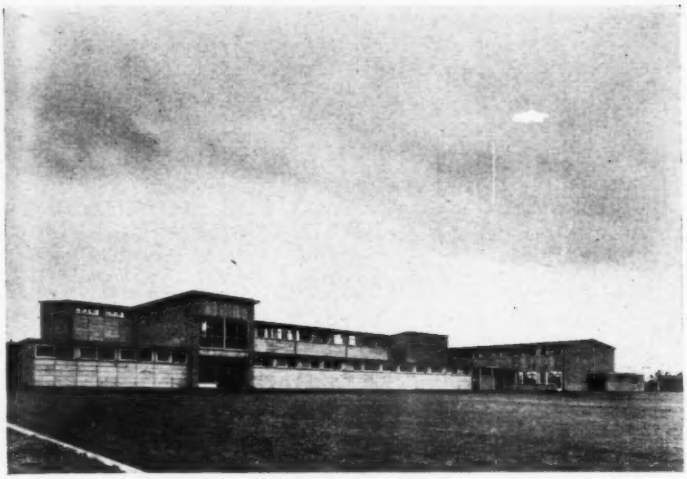


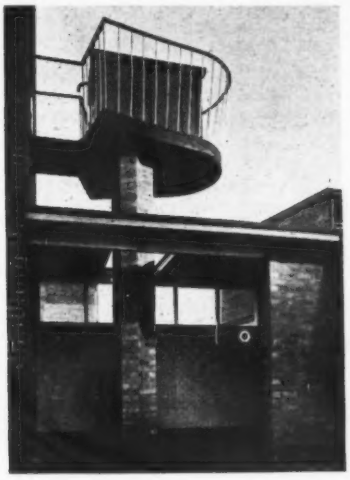


First floor plan



Ground floor plan [Scale : $\frac{1}{16}$" = 1' 0"]

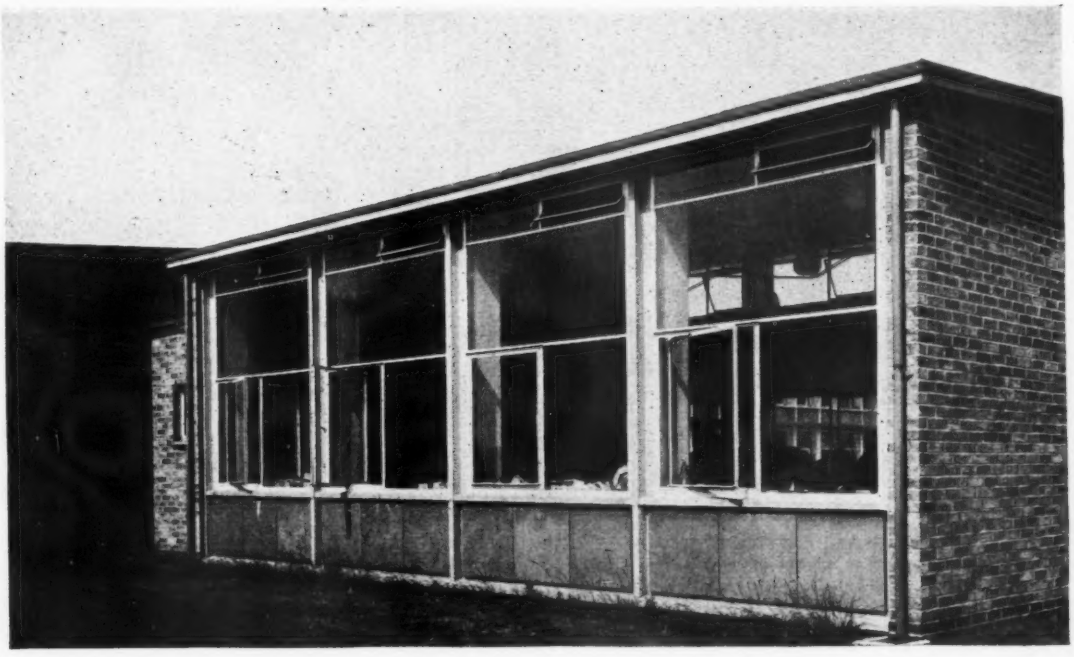


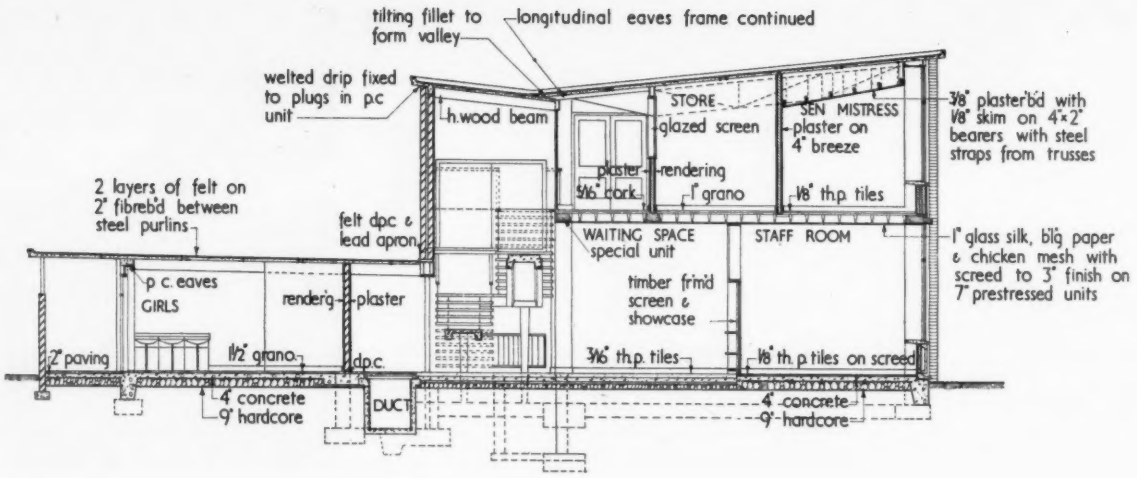




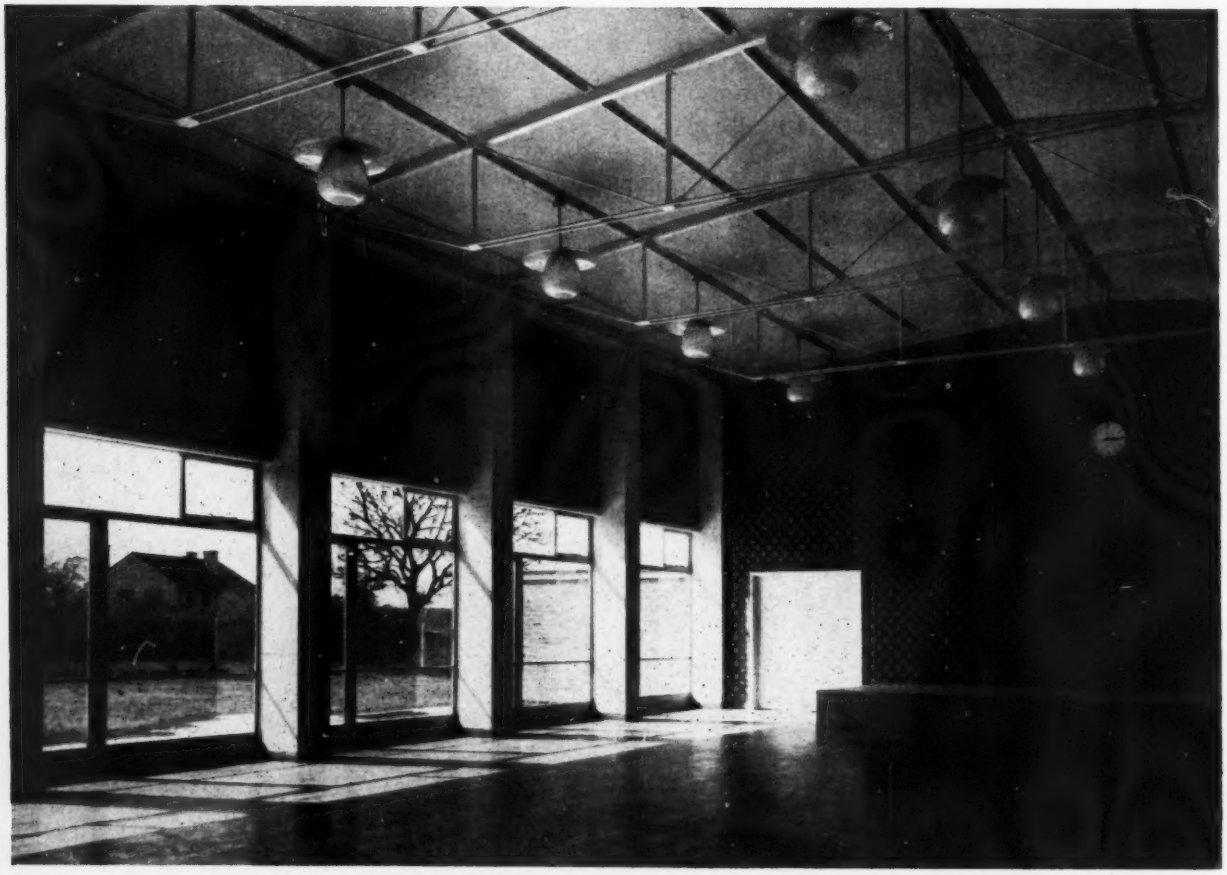
PRIMARY SCHOOL AT NEWTON AYCLIFFE

Above left, viewpoint 6: the north elevation, seen across the 160-ft. × 110-ft. tarmacadam playing pitch. The ground-floor windows light and ventilate the access corridor or the cloakrooms. The 3-ft. 7-in. × 11¾-in. × 2½-in. pre-cast concrete facing blocks, have tongued and grooved vertical joints, and the inside faces of the blocks are treated with a waterproofing compound. Above: the water tank housing (from viewpoint 7) is situated on the west side of the boiler-house flue. It consists of a reinforced concrete platform on a load-bearing brick pier. Left: the assembly hall (from viewpoint 9) is 53 ft. 7½ in. long, 36 ft. wide and 18 ft. 6 in. to the ridge, with columns spaced at 9-ft. centres. Being a junior school hall, the activities in it are essentially informal, and when weather permits the exercises can extend on to the paving and lawn on the west side. A close-up view of the cladding which is typical throughout the school is shown in viewpoint 8, below. The 9-in. × 1-ft. 1½-in. load-bearing brick piers carrying light-weight steel trusses are rendered internally and masked externally by T-shaped pre-cast concrete mullions, on a pre-cast base string, and a 2⅝-in. thick pre-cast concrete sill is set between the mullions. Below it pre-cast concrete panels made from a grey or buff coloured aggregate mix are backed by a 3-in. breeze wall. The windows have standard section frames and universal section inserts. Radiators are set in the spaces under the sills.





Section A-A

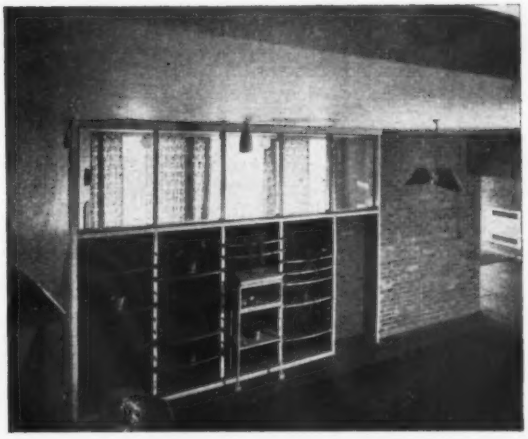


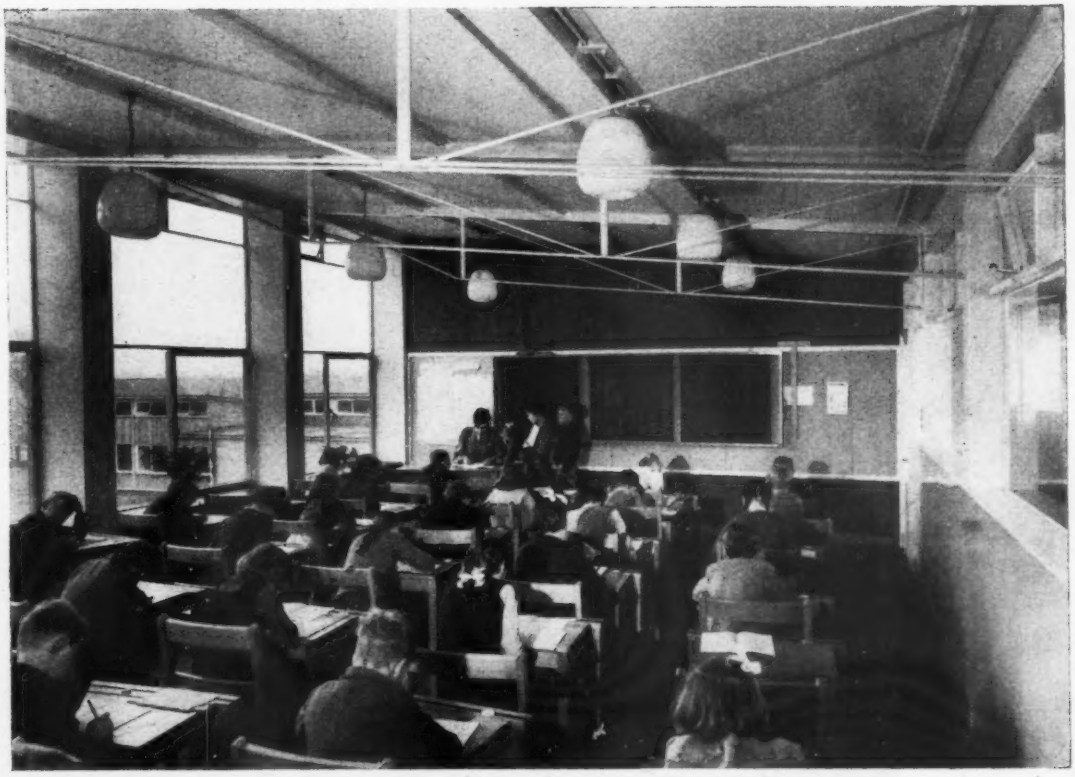
Above, the assembly hall interior. Construction is similar to that of the dining hall. A 6-deg. double-pitch lightweight welded truss has been designed to a similar pattern and using similar members to the trusses in the dining hall and classroom block. Spandrel infillings are faced with 1-in. Western Red Cedar boarding backed with 3-in. breeze blocks on r.c. lintols. The hall is floor heated with embedded l.p.h.w. coils, and the floor is finished in end-grip pattern African Muhuhu blocks. The portable platform was supplied by the Durham County authorities.



PRIMARY SCHOOL AT NEWTON AYCLIFFE

The 3-ft. 10-in. wide main classroom block staircase, above, is free-standing in the entrance hall, and rises opposite two fully glazed bays of the assembly hall. It has 6-in. risers and 10¾-in. treads. It is built on two 6-in. × 3-in. R.S.J. strings, and the half landing is carried by two cased rod columns. In-situ r.c. steps span between the strings and carry the 2¾-in. thick treads, which have a cork tile finish and a non-slip aluminium nosing. The treads cantilever 10 in. on either side of the r.c. steps. A mahogany handrail has bar balusters at 5¼-in. centres. Below: the school visitors' waiting area is situated in the main entrance hall, behind the staff room, and is lighted by a clerestorey from the staff room, and the wall under is finished with adjustable shelves. The framing to these is painted softwood, the shelves 1-in. mahogany, and the backing baize-covered insulation board. The waiting area has floor heating and a thermoplastic floor finish. Bottom is a typical first-floor classroom. The solid 4-in. breeze walls between classrooms are carried up just short of the framing to the pinning-up space. Above this point the wall becomes a double-skin casing to the lightweight m.s. truss, with the pinning-up board masking the joint. The ceiling is paper-faced, compressed straw-board roofing and is carried by m.s. angle purlins. A special angle purlin arrangement has been devised to permit the electrical conduit to run in the 2-in. deep roofing thickness, and so clear the trusses or beams. The heating is by neo-hospital type l.p.h.w. radiators set under the window sills. Nearly all the colours used in the school have been selected from the "Archrome" range.





The first-floor classroom access corridor, top picture, is served by staircases at each end with the regulation smoke doors. The long glazed partition, which is 4-in. breeze up to sill height has, and a non-standard pre-cast pre-stressed floor member was provided to carry it. Bottom: one of the three general purpose rooms in the west wing. The single pitch roof trusses are of the same pattern as those used in the classroom block and in the dining hall. The main boom is square in section and is made from two 3- × 1½-in. m.s. channels welded at their toes. The vertical struts are 1¼-in. diam. nominal bore tubes, and the tie members ½-in. and ⅝-in. diam. rods. The junctions are welded on to steel plates. Along the eaves run two 3-in. × 1½-in. spaced channels, to which the trusses and the pre-cast eaves units are bolted.

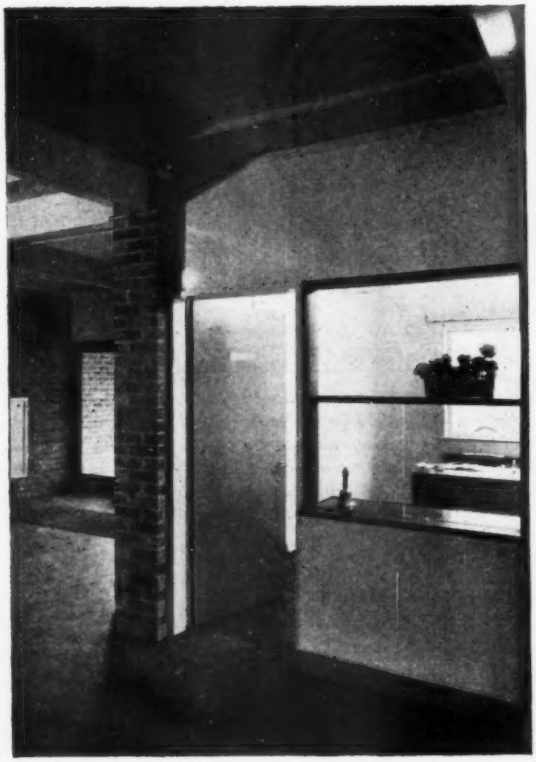


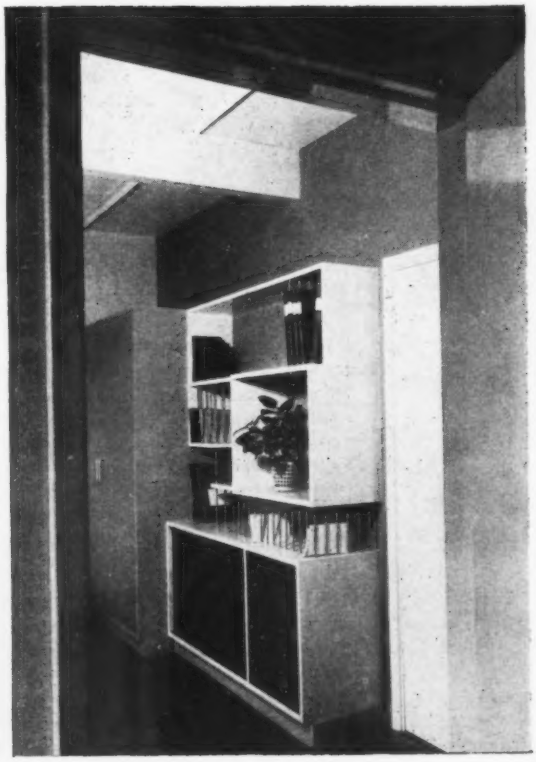




The secondary staircase in the classroom block, left, is constructed from L-shaped pre-cast concrete members, cantilevered from the 9-in. inner leaf of the 15½-in. cavity flanking walls. A solid rectangular concrete block at the end of the L-shaped units enables bonding into the brick courses. The staircase is 4 ft. 6 in. wide and the units are approximately 2½ in. thick. In the main entrance hall, the secretary's enquiry window, below left, incorporates a ¼-in. plate glass sliding hatch. The 2-ft. 8-in. high counter is faced with laminated plastic and has a built-in cupboard below it. Below: the cupboard in the headmaster's study. It is built mainly from painted softwood, with mahogany fronts to the drawers and beech dowell divisioning.

PRIMARY SCHOOL AT NEWTON AYCLIFFE





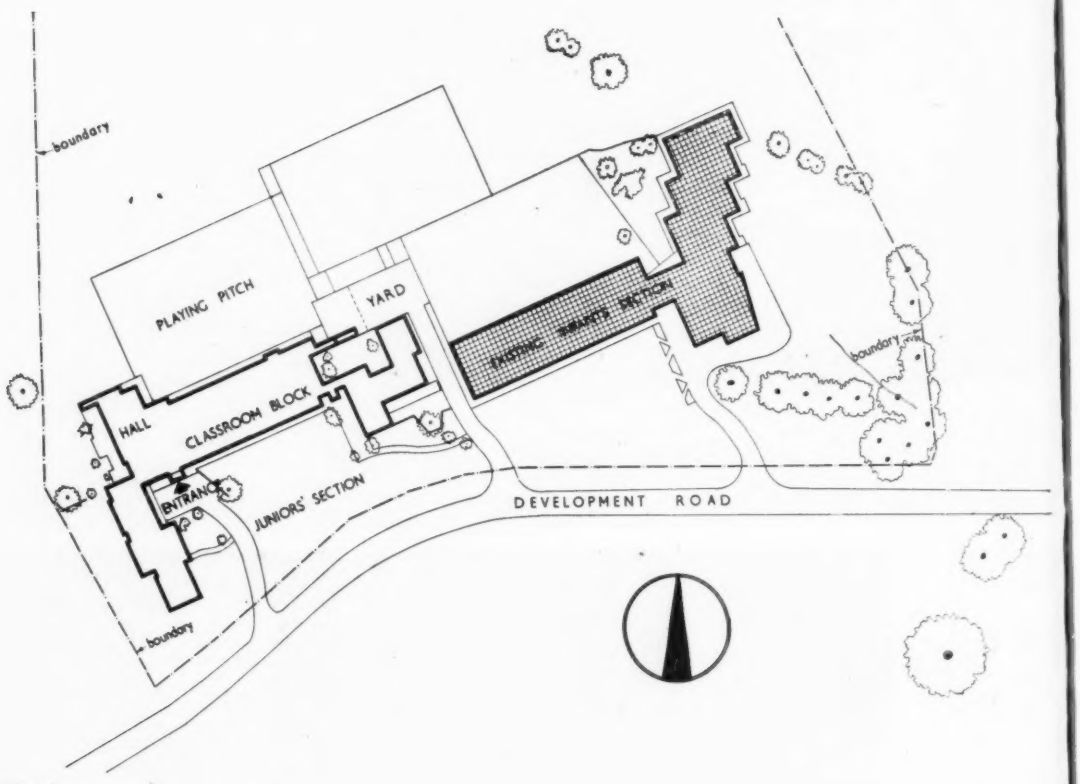
JUNIOR SCHOOL AT NEWTON AYCLIFFE

CLIENT'S BRIEF: his stated requirements

Two schools, scheduled for erection in the Newton Aycliffe development plan, on the Sugar Hill site. The first, a single-storeyed mixed infants school for 360 pupils; the second, a mixed Junior School for 480 pupils, to include a two-storey classroom block. This article is concerned with the Junior School, a three-form entry, having nine classrooms, each of 520 sq. ft., three general purpose rooms, each of 700 sq. ft., an assembly hall of 2,000 sq. ft. and cloakroom, dining, kitchen accommodation, etc. The two schools share the same heating and kitchen facilities, both of which are to be on the Junior School site. Originally it had been requested that two separate dining halls be provided on either side of the kitchen. It was later decided that a trolley service from the Junior kitchen to the Infants School would be preferable.

SITE: topography, surroundings, access, planting

The Junior School is sited on slightly higher ground than the surrounding area. Playing fields are to the north and east of the school. A service road, separating the two schools, provides access to the kitchen stores, the heating chamber and the pump room. The service road joins the main approach road which bends in an east to west direction across the southern frontage of the schools. The site is centrally situated in the new town, and is set in a housing neighbourhood near the proposed new town centre. The undeveloped site had only a cluster of trees at the south east corner of the Infants School, but a scheme of landscaping is being undertaken. The school is built on boulder clay, which is found to a depth of at least 8 ft., and which has fair load bearing properties. The area of the site for both schools is 9·75 acres.



Site plan

PLAN: general appreciation

The plan of the school is a flattened U-shape, southerly orientated, with classrooms flanking a grass lawn on two sides, the third side being the dining room. The northerly aspect is reserved for corridors, cloakrooms, circulation, etc., giving access to the more noisy playing pitches. The assembly hall, on the north side of the west wing, is in a position where noise from dancing or other informal activity will not disturb pupils in the classrooms. The two-storey classroom block, forming the base of the U, has entrances and staircases at both ends, and there is access at either level to the assembly hall and general purpose wing at the west end, or to the dining room and kitchen to the east. The kitchen is linked to the Infants School by a covered ramp, for the supply of meals.

MAIN CONSTRUCTION: general appreciation

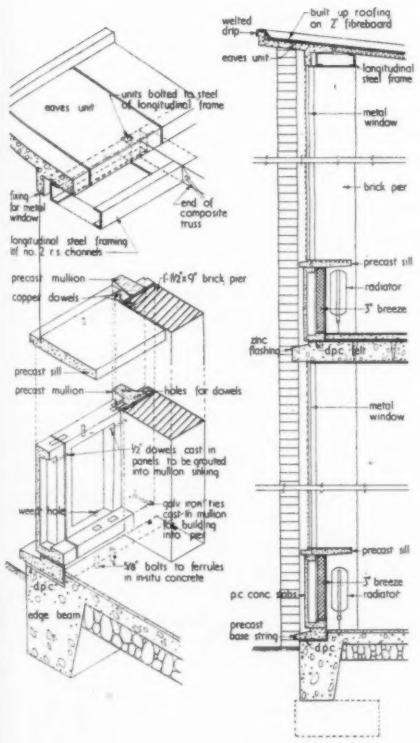
The school was originally designed for a light steel frame, but shortages enforced a late change to loadbearing brickwork. The classroom block has cross wall construction carrying the first floor, with pre-stressed pre-cast flooring units spanning the 21 ft. 9 in. between load-bearing walls. The 9-in. by 1-ft. 1½-in. structural brick piers carry lightweight steel roof trusses, which span the depth of the block, at the 7-ft. 3-in. column space centres. The general purpose wing, the assembly hall and the dining hall are constructed similarly to the upper storey of the classroom block. The kitchen is constructed with an *in situ* r.c. roof slab on r.c. columns, and the adjoining store areas are roofed with pre-cast pre-stressed concrete units, on load-bearing brick walls.

MAIN CONSTRUCTION

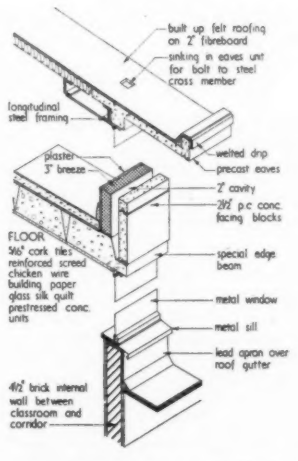
Load bearing element	*Location*	*Beam spans*	*Column grid*	*Reasons*
15½-in. brick gable walls and 11-in. cavity	Throughout		21 ft. 9 in. and 7 ft. 3 in.	Facing bricks were chosen for appearance in gable walls. The load bearing inner leaf was brick for economical reasons
Brick intermediate cross walls 9 in. thick	Ground floor of two-storey block		21 ft. 9 in.	
Brick intermediate cross walls 4½ in. thick	Cloakrooms and lavatories		7 ft. 3 in.	
Brick piers 1 ft. 1½ in. × 1 ft. 6 in. and 9 in. × 1 ft. 1½ in.	Throughout	36 ft. and 24 ft.	9 ft. and 7 ft. 3 in.	
Welded steel box stanchions	Glazed corridors	6 ft. 9 in. and 7 ft. 9 in.	7 ft. 3 in. and 6 ft. 9 in.	For design purposes
Steel tubes	Porches	5 ft. 6 in.	8 ft.	
In situ r.c. columns	Kitchen	24 ft.	9 ft. and 12 ft.	For design purposes

Foundation type	*Location*	*Sub-soil*	*Depth*
Mass concrete pads	Under piers and stanchions	Clay to a depth of at least 8 ft.	1 ft. 6 in. to 2 ft. below ground floor level generally to top of foundations
Strip concrete	Under load-bearing walls		
Reinforced edge beams	Under panel walls and as apron to floors		

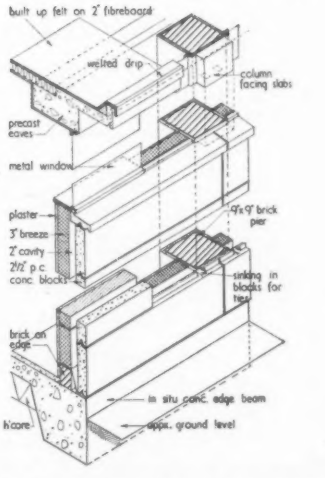
Outer wall type	*Location*	*Material*	*Finish*	*Reasons*
Load-bearing	General	15½-in. and 11-in. cavity. Facing bricks externally	Fairfaced, blue bricks from first floor level to course below finished ground level	Definition of floor line carried round to course with pre-cast concrete base-string
Non-load bearing blocks	North elevation of cloakrooms and two-storey block; east elevation of kitchen	3-in. foamed slag inner leaf; cavity; vibrated pre-cast concrete facing blocks externally	Warm grey, sandy textured	Blocks of suitable size and pattern for elevation. Speed of erection
Non-load bearing panels	South elevation of classrooms, east and west of general purpose rooms	3-in. foamed slag inner leaf; cavity; vibrated pre-cast concrete panels externally. Two small areas of frostproof tiles on foamed slag rendered externally	Panels with integral colour; dark grey to south, medium-textured buff to west and east. Tiles deep red and deep blue-green	Ditto



Isometric sketch of p.c.c. facing units to south elevation main classroom block. [Scale : ½" = 1' 0"]



Isometric sketch of p.c.c. facing units to north elevation, main classroom block.



Isometric sketch of p.c.c. facing units to north elevation, main cloakroom block.

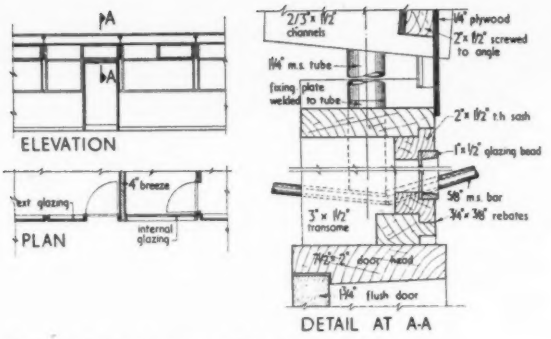
Outer wall type continued	*Location*	*Material*	*Finish*	*Reasons*
Spandrel infillings	East elevation over lower windows of g.p. room 1. East and west of assembly and dining halls	Vertical cedar boarding and building paper on battens spiked to 3-in. foamed slag inner leaf	Untreated	Light appearance over large windows denotes non-load bearing function between piers which were emphasised by T-shaped pre-cast mullion facings

Roof type	*Location*	*Material*	*Finish*	*Reasons*
Flat	Over circulation, lavatories, stores and cloakrooms. Porches	2-in. thick compressed straw paper covered slabs in purlins comprising two angles in a star section	Two layers of green mineralised felt	Economical light construction and insulation. Simple speedy erection; flat fixing clips set-screwed to ½-in. round bars welded into stalk of purlin angle
One-way pitch	Two-storey block, g.p. classrooms and dining halls	Ditto	Ditto	Ditto
Two-way pitch	Assembly hall	Ditto	Ditto	Ditto
Flat	Secondary staircase tower and kitchen stores	4½-in. thick pre-stressed pre-cast concrete units (soffit type)	Two layers of green mineralised felt on ½-in. insulation board on screed	Length of span, and irregular plan shapes
Flat	Kitchen	4½-in. and 4-in. *in situ* concrete	Ditto	More suitable for kitchen; homogeneous with r.c. beams and columns

Floor construction type	*Location*	*Material*	*Finish*	*Reasons*
Solid	All ground floors	Minimum 4-in. hardcore, 4-in. concrete slab, 2-in. screed and finish including d.p.c.	⅛-in. semastic tiles (classrooms and corridors); ¾-in. heatherbroom quarries (kitchen); granolithic (lavatories)	General suitability. Economy and flexibility of colour and pattern
Solid under-floor heating	Assembly and dining halls; part of entrance hall	Minimum 4-in. hardcore, 2-in. blinding concrete, waterproofing layer, bitumen quilt perimeter insulation, 4-in. concrete, 3½-in. screed including heating coils	Assembly and dining have 1-in. nominal membrane wood blocks: end-grip system; sealed and polished. Semastic tiles in entrance hall	General suitability
Suspended	First floor	7 in. thick (8 in. under corridor partition) pre-stressed pre-cast concrete units (soffit type) with 1-in. nominal glass silk quilt covered by building paper to form floating floor	⅛-in. semastic tiles (classrooms) granolithic (stores), ⅛-in. cork tiles (corridor) on 2-in. screed reinforced by chicken wire mesh	Sound insulation. Quietness in first floor corridor

Internal wall type	*Location*	*Material*	*Finish*	*Reasons*
Brickwork 4½ in. thick	General	Commons	Plastered or rendered except where covered by insulation board as pin-up area. Cream glazed wall tiles in kitchen and stores, and behind corridor sinks	Economy
Brickwork 4½ in. thick	Corridor side of classroom stores	Selected commons	Fairfaced, emulsion paint	Textural contrast with plastered surfaces
Blocks 3 in. and 4 in. thick	General	Foamed slag	Plastered or rendered, except where covered by insulation board as pin-up area	Sound and thermal insulation required in minimum thickness
Glazed screens	Borrowed lights to classrooms and stores	Softwood and hardwood (mahogany)	Painted and natural wax polished	Light requirements and continuation of view of space
Hardwood framing and boarding	Staff room	Mahogany and sycamore	Wax polished	Contrast and display to entrance hall
Metal faced plywood partitions	Girls' and boys' lavatories	Aluminium	Painted	Clear of floor for ease of cleaning

Ceiling type	*Location*	*Material*	*Finish*	*Reasons*
Compressed straw slabs	Assembly, dining, g.p. wing, lavatories, cloakrooms and corridors, first floor classrooms	Compressed straw, paper covered	Water paint	Economical roofing, ceiling and insulation in one material
In situ and pre-stressed pre-cast concrete units (soffit type)	Kitchen and stores. Ground floor classrooms	Plaster	Water paint	
Plywood	Porches	Exterior grade plywood	Gloss paint	Flush finish with min. depth



Details of glazed screen to first floor corridor
[Scale : 1½" = 1' 0"]

ARTIFICIAL LIGHTING

Source and fitting type	*Location*	*Illumination level*	*Quality*
Tungsten dispersive, using mainly pendant fittings	Ceilings generally; several wall brackets	To statutory requirements for room uses	Layout adapted in circulation spaces to add interest of light and shade patterns in relation to architectural forms

Wiring and switching types	*Location*	*Reasons and comments*
v.i.r. cables in screwed conduit. Flush-pattern switches in c.i. boxes	Buried in walls: exposed in purlin troughs along length of building, with back inlet boxes dropping below junctions allowing conduit to travel across the building along rafter-backs of trusses and along beams. "Loop-in" system wherever concrete *in situ* or pre-cast units were employed	Ease of rewiring. Lack suspended ceilings

Power supply type	*How distributed*	*Comments*
Three-phase four-wire A.C 50 cycle system at a normal pressure of 415 volts between phases and 240 volts phase to neutral	From main switchboard panel in adjacent Infants' school (point of access from mains) to sub-main switches and local fuseboards located in stores generally, thence to lighting points and socket outlets	Cable space allowed in detailing along the top of the first floor corridor borrowed light to class-rooms

NATURAL LIGHTING

Wall glazing	*Location*	*Reasons and comments*
Metal windows. Standard section frames with universal section inserts for ventilators and doors of varying types. Inside glazing with beads. ¼-in. Georgian wired polished plate was used below 2 ft. 6 in. height in all full length glazing. External swing doors had armoured plate	Throughout	Slender lines giving minimum obstruction to view from within, and painted broken white to avoid glare. Opening lights emphasised giving more lively and interesting elevational patterns. Economy in form of construction. A standard design was used throughout for main classroom windows, and a second standard was common to assembly hall and dining hall. Blinds not in contract at client's request

Roof glazing	*Location*	*Reasons and comments*
Curved Perspex corrugated acrylic sheets on timber frames	Ground floor corridors and kitchen	Steel roof purlins were spaced to suit 4-ft. standard width of straw slabs. Curved corrugated Perspex most suitable and adaptable for rooflight retaining similar spacing. Light in weight. Economy

THERMAL INSULATION

Type	*Location*	*U-value*	*Comments*
11-in. cavity brickwork	Gables and kitchen stores	0·30	
Concrete block externally, cavity 3-in. foamed slag internally	Classrom blocks	0·23	
Vertical boarding externally, cavity, 3-in. foamed slag internally	Assembly and dining halls	0·22	
2-in. strawboard felted	Roofs generally	0·19	Roofing, ceiling and insulation properties in economical form
4-in. concrete, 1¼-in. average screed, ½-in. felted insulation board	Kitchen and stores, secondary staircase	0·25	

HEATING AND VENTILATION: artificial and natural

Heat exchanger type	*Location*	*Criteria temp.*	*Air change rate*	*Reasons*
Concealed type forced convection heaters with bottom inlet grille; thermostat control	Entrance halls	Generally 62° F. internally and 30° F. externally. Assembly and dining 57° F. internally	Classrooms 3, assembly and dining 2	Large heat losses at entrances
Embedded floor panels	Assembly, dining and part entrance hall			Uninterrupted wall spaces desired
Neo-Hospital type radiators	General			Economy: suitable in size and proportion for recesses between piers
Extractor fans	Kitchen clerestorey. Drying rooms		Kitchen; 4 fans each extracting 40,000 cu. ft. of air per hour. Drying room: one fan extracting 20 000 cu. ft. of air per hour	

Boiler type and capacity	*Heat load*	*Fuel type*	*Stoking method*	*Reason for choice*
Existing infants' school heated by 2 solid fuel 37 KS boilers; these were extended to 310 KS and two new 310 KS c.i. sectional boilers added, each rated at 643,000 BTU's per hour	940,000 BTU's	Bituminous coal	Hopper type, robot underfeed automatic stokers	Fuel suitable to area

Water heater type	*Location*	*Fuel type*	*Stoking method*	*Reason for choice*
Existing infants' school supplied with hot water by a system of dispersed indirect cylinders and storage tanks in conjunction with a solid fuel 25 KS boiler. This was extended to 210 KS	Adjacent to heating boilers	Bituminous coal	Hopper type robot underfeed automatic stokers	Fuel suitable to area

Hot water storage type	*Location*	*Materials*	*Capacity*	*Comments*
Six indirect cylinders dispersed throughout building	One horizontal in pump room over heating chamber. Five vertical cylinders in cupboards adjacent to lavatories in g.p. wing, staff lavatories, senior mistress' room, girls' lavatories and boys' lavatories in main block	Copper in accordance with BSC of P. C.P. 342 (1950)	Varying from 12 galls. to 150 galls. according to local requirements, and capable of heating this quantity from 50° F to 150° F. in one hour, with a mean primary water temperature of 165° F.	Cylinders and drying room coils served in summer by hot water primary supply

Pipes and jointing types	*Location*	*Electric installation method*
Heating: mild steel class " B," welded in inaccessible positions. Elsewhere screwed joints. Stainless steel bellows type expansion joints. Pre-cast concrete blocks set in brick piers with holes predetermined for sleeving pipes between radiators; similarly sills, and first floor edge unit. Hws and cws: copper BSS 654: 1944 with capillary fittings	Mains in crawlway duct for full length of ground floor corridors. Small branch ducts	Screwed conduit and v.i.r. cables serving starters to pumps, stokers, and thermostat control gear

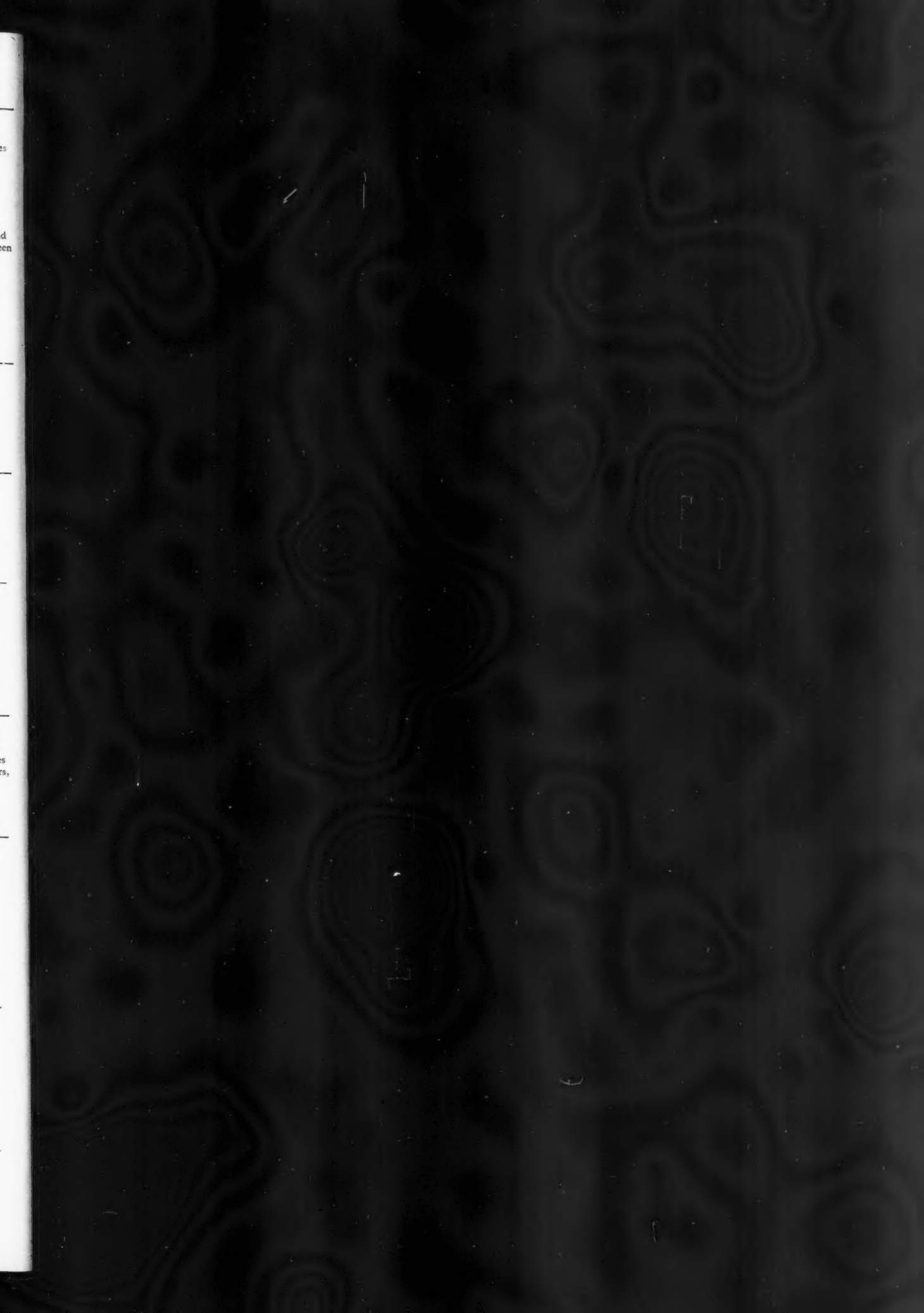
Cold water storage	*Location*	*Materials*	*Capacity*
Dispersed tanks	Over cylinder in staff lavatories and g.p. wing. High level in store adjacent to classroom 6, cleaners' store adjacent to classroom 9. On tank platform alongside boiler house chimney	m.s. plate 12 s.w.g. before being galvanised and complete with 16 gauge galvanised loose cover	30 galls to 100 galls. and 150 galls. according to local requirements

REFUSE

Refuse method	*Type of refuse*
Kitchen bins	Food waste
Heating chamber bins	Ash

SPECIAL ACOUSTICAL TREATMENT

Sound absorption material	*Location*	*Absorption coefficient*
Strawboard ceilings	Throughout	0·45 at medium frequencies
Acoustic tiles	Rear wall of assembly hall above door head	0·60 at medium frequencies



WORKING DETAIL

NORTHLIGHT ROOF: FACTORY AT CRAWLEY

J. M. Austin Smith and Partner, architects; F. J. Samuely, consulting engineer

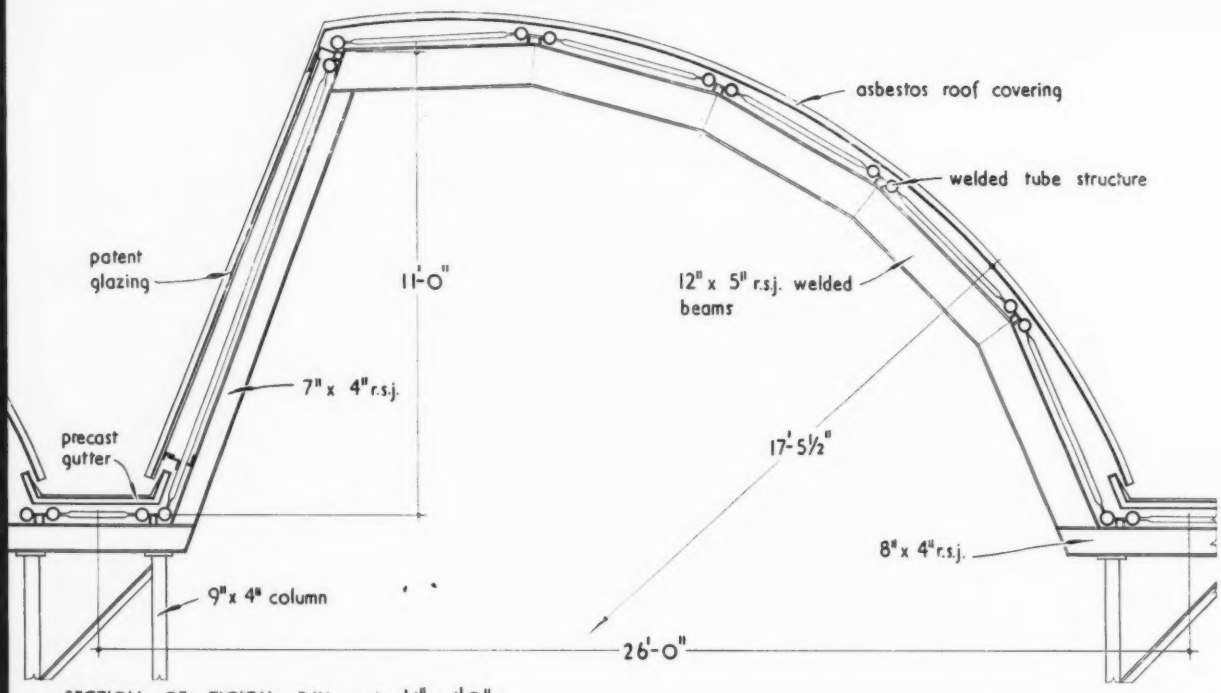


This roof, which is described by the designer as "steel folded slab construction," is built up from a number of lattice girders shop-fabricated from m.s. tubes and bars. These, which are of two standard lengths, 43 ft. 2 in. and 32 ft. 4 in., are bolted together, side to side, through shear connections at each panel point; they are welded together end to end by means of shear plates which are introduced at each angle of intersection and site-welded to all four adjacent girders. The shape of the roof is maintained by the supporting ribs which in the main bay are 110 ft. centre to centre. Temporary centring of the same profile was used to hold the girders in place prior to welding.

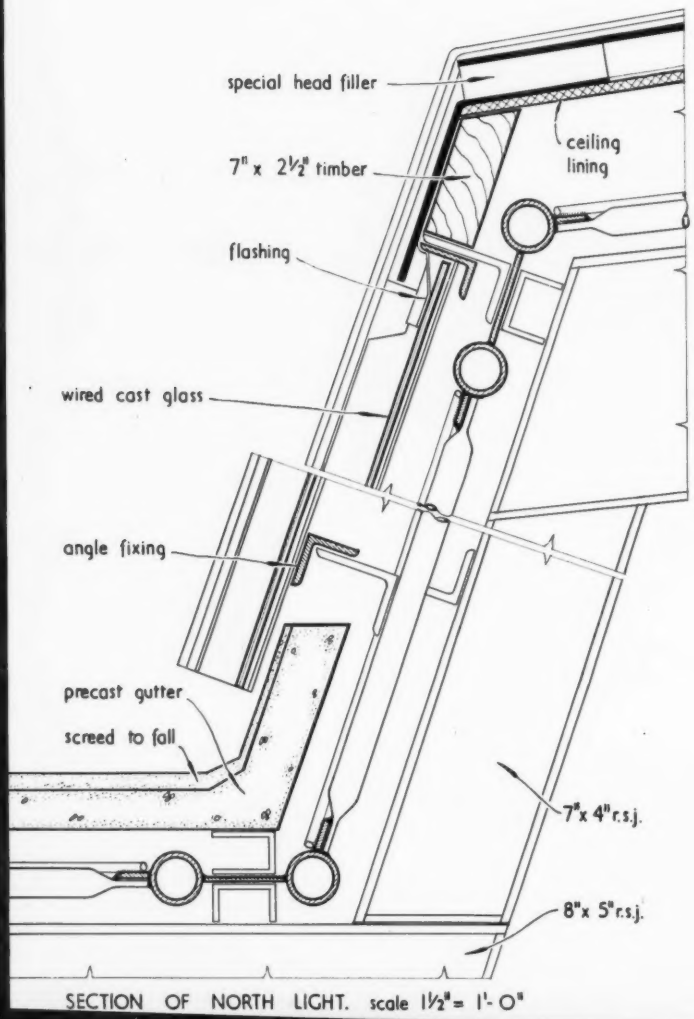
WORKING DETAIL

NORTHLIGHT ROOF: FACTORY AT CRAWLEY

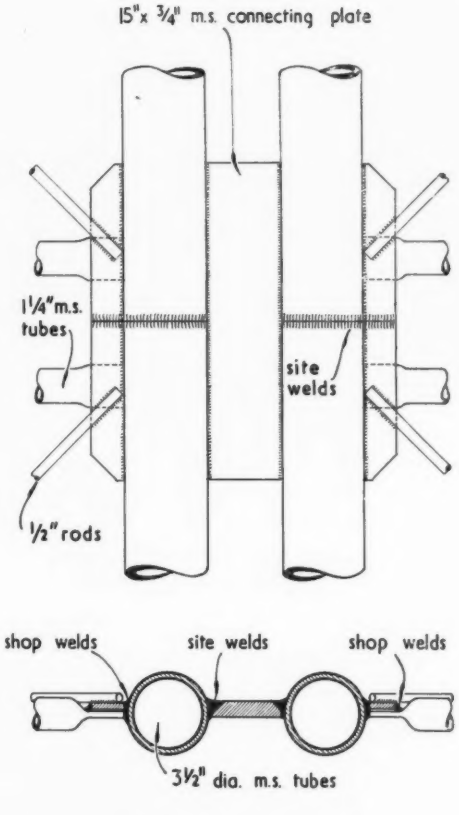
J. M. Austin Smith and Partner, architects; F. J. Samuely, consulting engineer



SECTION OF TYPICAL BAY. scale ¼" = 1'-0"



SECTION OF NORTH LIGHT. scale 1½" = 1'-0"

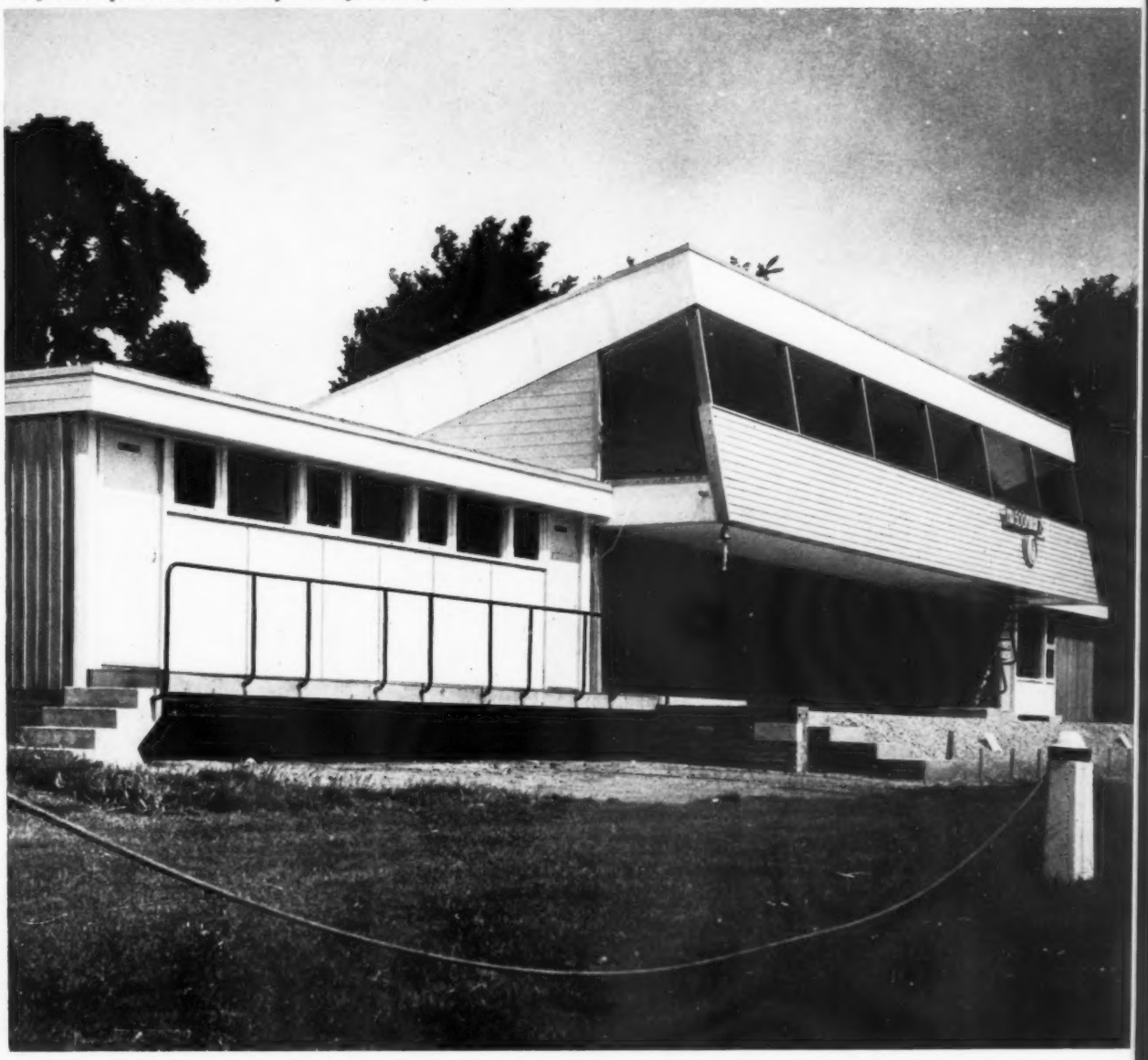


DETAIL OF TYPICAL CONNECTION BETWEEN TRUSSES.
scale 1½" = 1'-0"

WORKING DETAIL **BALCONIES: 14**

BALCONY: CRICKET PAVILION AT EAST MOLESEY

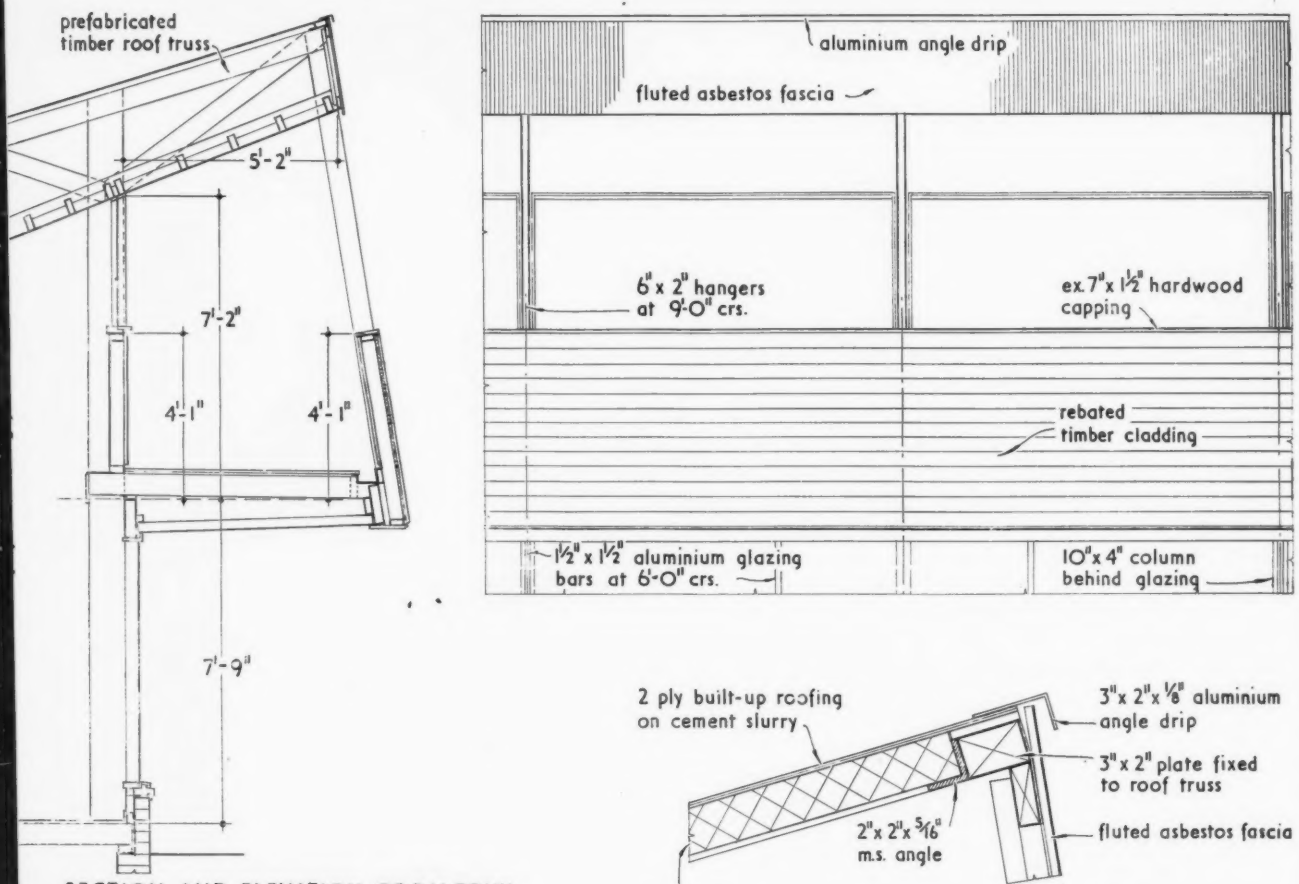
Designer, Professor Basil Ward of Ramsey, Murray, White and Ward: site architect, G. P. Buzuk



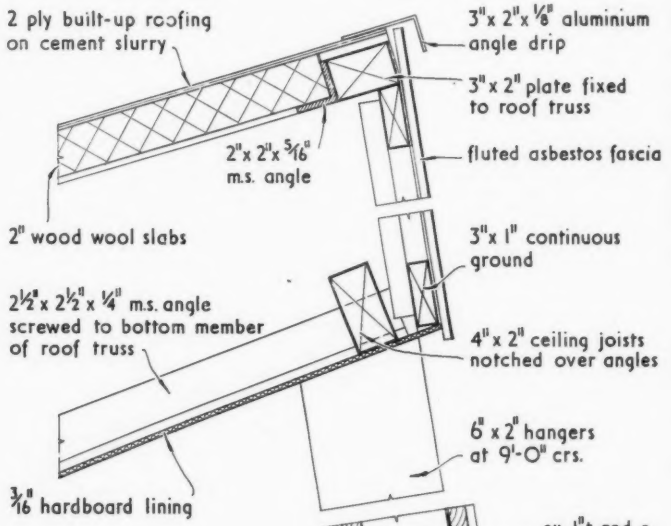
The balcony of the cricket pavilion is not cantilevered from the walls but is hung from the roof truss. Window frames are of mahogany, the capping of the balustrades of oak, the floor of the balcony of gurjun, the weatherboarding of painted softwood. Windows facing the pitch are of Georgian wired glass to guard against cricket balls. There are no opening lights on this side, cross ventilation being ensured by 1 in. dia. air holes at 6 in. centres in the hardboard lining beneath the upper windows and by a corresponding slit in the weatherboarding.

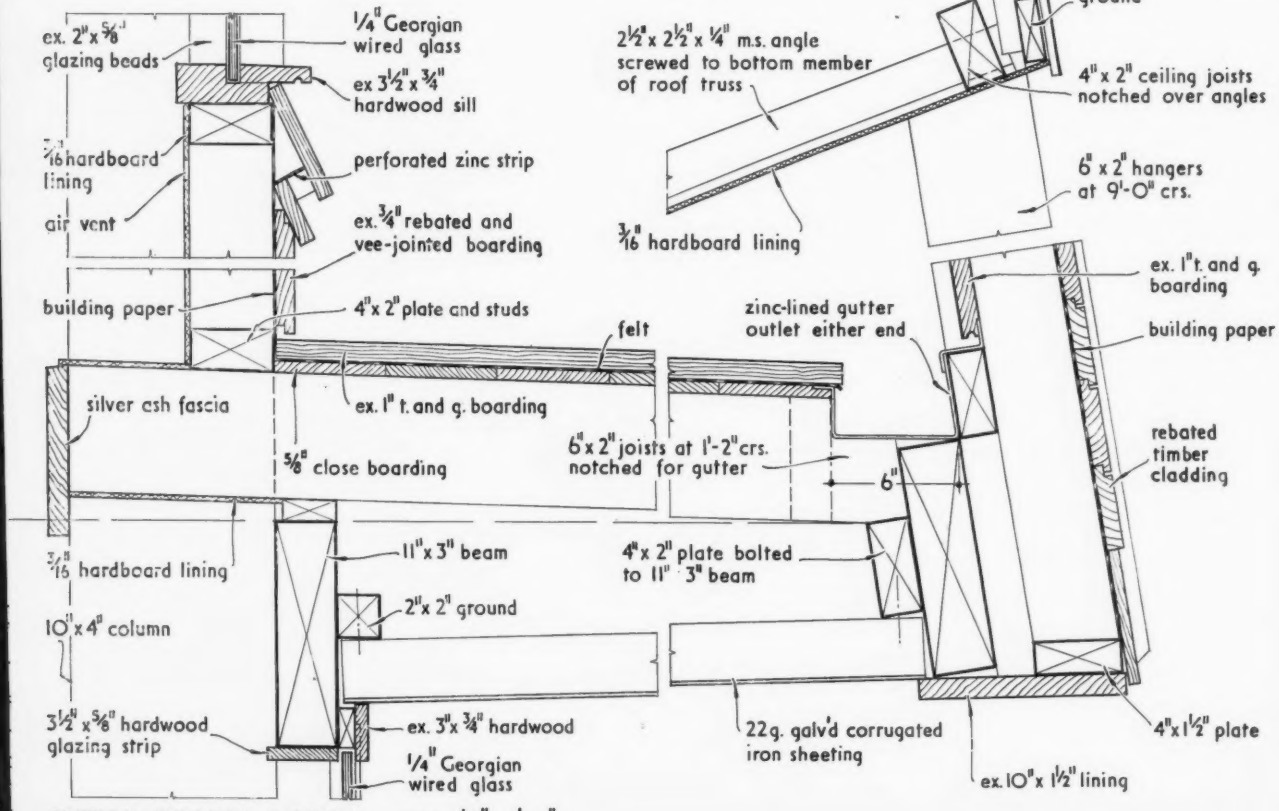
BALCONY: CRICKET PAVILION AT EAST MOLESEY

Designer, Professor Basil Ward of Ramsey, Murray, White and Ward; site architect, G. P. Buzuk



SECTION AND ELEVATION OF BALCONY.
scale: ¼" = 1'-0"





SECTION THROUGH BALCONY. scale 1½" = 1'-0"



Sound insulation	*Location*	*Insulation standard*	*Comments*
Cork flooring	First floor corridor		Resilient flooring against impact sound
Non-homogeneous floor of finish and screed over fibre-glass quilt on pre-stressed concrete units. Partitions on felt pads	First floor	20 phons reduction	Insulates structure from impact noise in accordance with principles and details of BRS Digest No. 19
9-in. brickwork plastered both sides	Between ground floor classrooms	57 decibels reduction	
4-in. foamed slag plastered both sides	Between first floor classrooms	52 decibels reduction	

SOIL WASTE

Type of system	*Materials*	*Method*
Separate	Cast iron	Traditional

Drain types	*Materials*
Separate	Cast Iron. First quality s.g. stoneware. Concrete casing under building

Rainwater disposal type	*Location*	*Materials*	*Comments*
Box gutter formed in roof, by dropped roof slab or pre-cast concrete eaves unit	Within main flat roof area	Felted	
Standard gutters	Perimeter of flat roof	Grey-coloured enamelled-moulded-steel	Self-colour sympathetic with any exterior decoration
Downpipes	General, internal and external	Grey-coloured enamelled-steel, joints without sockets	A number with special integral eaves for fixing to splay of T-shaped pre-cast mullion facing to piers

FIRE

Structural precautions	*Grade of protection*	*Apparatus, sprinklers, etc.*
Structural steel in staircase and wells encased in concrete or plaster	One hour	Hose reel system

Planning precautions, access for fighting	*Means of escape*
Easy access all round building. A pair of smoke-resisting doors on each floor between staircases	Two staircases and sufficient external openings to provide alternative means of escape from all rooms

COLOUR

Paint types	*Where used*	*Colour treatments*
Washable water paint	Plastered ceilings and walls. Strawboard ceilings	Several walls in facing bricks penetrated into the interior from outside, particularly where the same gable wall could be seen both inside and outside the building. The following fifteen were selected from the Munsell range: 4, 5, 6, 15, 17, 20, 21, 22, 23, 26, 29, 31, 35, 42 and 47. Broken white was used extensively on framings, and on windows inside and out. Quiet colours, 21, 29 and 47, were selected for the end walls in classrooms to aid concentration. On walls opposite glazing and on radiators forming panels below sills in external walls, the bright colours, 5, 6, 15, 26 and 35 were used. To minimise glare in outer walls, to lessen their bulk and to distinguish them as a regular punctuating element in the design, all structural piers were coloured 42. Ceilings and panel walls against the light were also 42, in the former case to obtain the maximum light reflection and in the latter to minimise glare. Gaiety and liveliness imparted to the assembly and dining halls and circulation areas. The corridor walls of ground floor classroom stores were given individual bright colours 5, 15, 26, 31 and 35, with the corresponding classroom door in the same colour; intervening cloakroom bays were in neutral greys. One end of the assembly hall was covered with Crown wallpaper C.686, which has a large overall pattern, and the ceiling was 26. A corresponding wall paper in the dining hall was C.648 and the ceiling was 35. The soffit of the main entrance porch was painted 4
Gloss oil paint	Externally on windows, metal-work, and fascias. Internally on timber and steel framework	
Semi-gloss oil paint	Internally on plastered walls	
Emulsion paint	On porous surfaces internally	
Wax polish	Hardwood framework internally	
Linseed oil	External hardwood doors	

TIME SCHEDULE

Contract signed	*Work commenced*	*Work completed*	*Type of contract*	*Comments*
April 22, 1953	March 2, 1953	September, 1954	RIBA form for local authorities where quantities form part of the contract, subject to an additional clause that the county council may require sureties for the due performance of the contract	Originally intended that the contractor responsible for the infants school should remain on site to erect the junior school on a schedule of rates from the first contract. But the Ministry of Education insisted on bills of quantities which were negotiated with the same contractor

SITE AND PLAN ANALYSIS

Site accommodation	*Area in acres*	*Per cent of total*
Building (existing infants)	0·43	4·4
Building (juniors)	0·43	4·4
Playing fields	5·00	51·3
Hard playing areas	1·15	11·8
Roads	0·30	3·0
Paths, paving	0·29	2·9
Planting and grass areas	2·15	22·2
Total site area	9·75	100·0

Plan accommodation. Area taken within external walls	*Area in sq. ft.*	*Per cent of total*	*Area per place*
Hall	2,052	8·9	4·27
Classrooms and g.p. rooms	6,840	29·86	14·25
Dining, including kitchen and stores for both schools	3,153	13·76	6·57
Pupils' storage, teaching and general	955	4·17	1·99
Sanitary accommodation, including cloakrooms	2,890	12·62	6·02
Staff rooms	682	2·98	1·42
Service, cleaners' rooms	170	0·74	0·36
Circulation	6,168	26·32	12·85
Total	22,910	100·0	47·73

COST ANALYSIS

Number of form entries	3
Number of places	480
Floor area in sq. ft. within external walls	22,910
Number of sq. ft. per place	47·73
Net cost (bill of quantities)	£69,200 12*s.* 7*d.*
Net cost per place	£143 6*s.* 8*d.*
External works (bill of quantities)	£9,277 11*s.* 3*d.*
Gross cost (bill of quantities)	£78,478 3*s.* 10*d.*
Gross cost per place	£163 9*s.* 11*d.*
Tender date	April 22, 1953

The following cost analysis was based on the bills of quantities for the contract in which the junior school was erected. Part of the kitchen costs was to be allocated to the infants' school, and part of the cost of general external works carried out in the contract in which the infants' school was erected was to be allocated to the junior school. This apportionment is shown in the general summary

Element	*Cost per sq. ft.* *s.*	*d.*	*Element*	*Cost per sq. ft.* *s.*	*d.*
Preliminaries and insurance		11·3	Fittings		0·2
Contingencies	2	7·4	Ironmongery		7·6
Work below ground floor level	5	4·4	Plumbing (external)		8·1
External walls and facings	8	3	Plumbing (internal)		10·2
Internal partitions	2	3	Sanitary fittings	1	2·1
First floor and staircases	2	10·4	External tank platform		0·8
Roof construction	7	10·1	Gas installation		0·8
Roof lights		3·5	Electrical installation	3	4·5
Floor finishes	3	10	Heating and hot water installation	6	11·3
Ceiling finishes		5·6	Ventilation extracts		1·5
Metal windows	4	0·4	Drainage	2	6·4
Timber doors and frames		10	Glazing	1	2·8
WC doors and partitions		4·8	Interior decoration	1	4
Cloakroom fittings		8·6	Playgrounds and paved areas	2	1
Wall finishes	1	7·1			
Built-in fittings		7·4	Total	63	11·3

TECHNICAL SECTION

A BS which architects would do well to keep in their mackintosh pockets when going on site is BS 1186:Part 2:1955 *Quality of Timber and Workmanship in Joinery.** This has been drawn up in answer to a request made to BSI by the RIBA back in 1948 to determine what exactly ought to be meant by phrases such as " in a workmanlike manner," " to the architect's satisfaction " when applied to joinery. The new BS goes carefully through the different classes of joint and states precisely what is acceptable, giving permissive tolerances where they are required. Thus—to quote one example—doors and sashes which are to be painted should show a gap between their edge and their surround which should be not less than $\frac{1}{16}$ in. or more than $\frac{3}{32}$ in. at any point. On doors and sashes which are not to be painted, gaps should not exceed $\frac{1}{32}$ in. This is exactly what was wanted. It is now for architects to make themselves as familiar with the details of this Standard as, doubtless, members of the timber trade are already.

*Obtainable from BSI. 2s. 6d.

This week's special article

HEATING AND VENTILATION
fuel consumption in schools

The number preceding the week's special article or survey indicates the appropriate subject heading of the Information Centre to which the article or survey belongs. The complete list of these headings is printed from time-to-time. To each survey is appended a list of recently-published and relevant Information Centre items. Further and earlier information can be found by referring to the index published free each year.

*Architects have long been bewildered by the conflicting claims advanced in favour of different types of heating for different purposes. Their bewilderment can only be diminished if there is a growing body of published tests applied to actual buildings in ordinary use and sponsored by organizations which have no axe to grind. This week Henry Goddard comments on the findings of the important series of tests on fuel consumption in schools which are published in the new MOE Building Bulletin No. 13.**

*Fuel Consumption in Schools. HMSO. 2s.

All readers of the JOURNAL will be familiar with the meticulous research already carried out by the Building Research Station into heating problems, and the valuable reports already published on this work. The latest investigation deals with the fuel consumption of school heating installations and with the capital costs of these installations; and the results are contained in the Building Bulletin No. 13 published by the Ministry of Education, at whose request the research was undertaken. All architects who are in any way concerned with school building will find this publication valuable: it disposes of theories previously held, and it confirms facts which though suspected still required proof. In particular, it will be an invaluable ally to those whose duty it is to convince education committees of the value or otherwise of a given system.

The importance of achieving the maximum economy, consistent with comfort, in school

heating is stressed. Apparently the existing maintained schools in England and Wales use between 1½ and 2 million tons of coal a year, and each year's building programme adds about 60,000 tons to the total. Further, research shows that the average consumption in schools is appreciably higher than the calculated consumption: and that considerable savings are possible.

The technical problem to be solved is contained in Regulation 52 of the Standards for School Premises Regulations, 1954, which lays down the heating and ventilation requirements. And these standards must be achieved with a minimum total expenditure on both capital and running costs during the life of the building. Schools present certain particular problems because of their comparatively large size, the short time in which they are occupied, the considerable variations in their planning (especially in respect of compactness and number of storeys), and the often unfamiliar methods of construction and materials used. The BRS investigation has not covered all the school heating and ventilation problems: it is hoped that this will be done later. Particularly needed is study of the capital cost of plant and builders' work, the speed and simplicity of installation, the thermal capacity and insulation of the structure, and the relationship of heating to lighting, decorations, furnishing and cleaning.

NATURE OF THE TESTS

The MOE Bulletin deals mainly with the three most general types of school heating installation—forced warm air, radiators and floor panel systems. It considers both their fuel consumption and the comfort they provide. The use of different fuels and firing methods is also considered. (Certain other valuable results have been obtained, incidentally, such as the ventilation rates achieved in practice.) The basic experimental work, on which the Bulletin is based, was carried out at the Abbots Langley Primary School, where three pairs of classrooms were equipped with each of the three types of heating to be reviewed. In addition, a field survey of some 160 post war schools was made.

The first system studied is the cabinet-heater type of warm air equipment. Each space in the school has its own room thermostat, which controls the fans forcing the air over the heat exchange surfaces in the cabinets. Thus the heat requirement of each room is individually and accurately controlled during the hours of occupancy: at other times, the fans are switched off, the equipment idles, and little heat is lost. When heating is again required, the small mass of the structure and equipment ensures a quick return to the desired air temperature.

Radiator systems are of the conventional type, with column-type radiators giving off their heat almost entirely by convection: there are no individual thermostats and the radiators are controlled by the adjustment of the main flow temperature alone.

Most floor panel systems have hot water pipes buried in the concrete slab: two, however, have electric cables so buried. The water-heated type is controlled, as the radiators are, by variation of the main flow temperature: but the large mass of the concrete slab means that changes in heat emission lag far behind variations in water temperature, and heat is being emitted even when it is not being replaced from the water. Such installations are for the most part confined to class-rooms: other parts of the schools so equipped usually have radiators or convectors.

Fuels and firing methods included in the study comprise hand-fired coke, mechanically fired coal, oil and gas: also two direct electrical installations.

TEST RESULTS

In general, the experimental results show a very satisfactory correspondence with those obtained in the field survey: the figures obtained in the latter are therefore worth careful study.

Table 4 below shows the average cost per year for the various fuels and heat transfer

Four tables from the MOE Bulletin reviewed here.

TABLE 1.—ANNUAL FUEL CONSUMPTION/THERM DESIGN HEAT LOAD

—	Warm air		Radiators		Floor panels	
Design heat load (therms)	<12·5	>12·5	<12·5	>12·5	<12·5	>12·5
Coke tons)	—	—	9·5	7·1	—	—
Coal (tons)	9·0	(8·3)	12·0	(11·0)	12·0	(11·0)
Gas (therms)	—	—	2,100		—	—
Oil (gals.)	—	—	1,200		—	—
Electricity (kWh. off-peak)	—	—	—		51,300	

TABLE 2.—EQUIVALENT NUMBER OF HOURS AT FULL DESIGN HEAT LOAD

—	Warm air		Radiators		Floor panels	
Design heat load (therms)	<12·5	>12·5	<12·5	>12·5	<12·5	>12·5
Coke (265 therms per ton)	—	—	2,500	1,900	—	—
Coal (265 therms per ton)	2,400	(2,200)	3,200	(2,900)	3,200	(2,900)
Gas	—	—	2,100		—	—
Oil (402 therms per ton)	—	—	2,000		—	—
Electricity (off-peak)	—	—	—		1,750	

TABLE 3.—ANNUAL FUEL CONSUMPTION/1,000 SQ. FT. FLOOR AREA

—	Warm air		Radiators		Floor panels	
Floor area (1,000 sq. ft.)	<30	>30	<30	>30	<30	>30
Coke (tons)	—	—	4·5	3·5	—	—
Coal (tons)	4·5	(4·0)	5·0	(4·5)	5·0	(4·5)
Gas (therms)	—	—	1,150		—	—
Oil (gals.)	—	—	630		—	—
Electricity (kWh. off-peak)	—	—	—		20,000	

Note: Bracketed figures are estimates for the larger schools where the sample was not sufficient to provide direct answers.

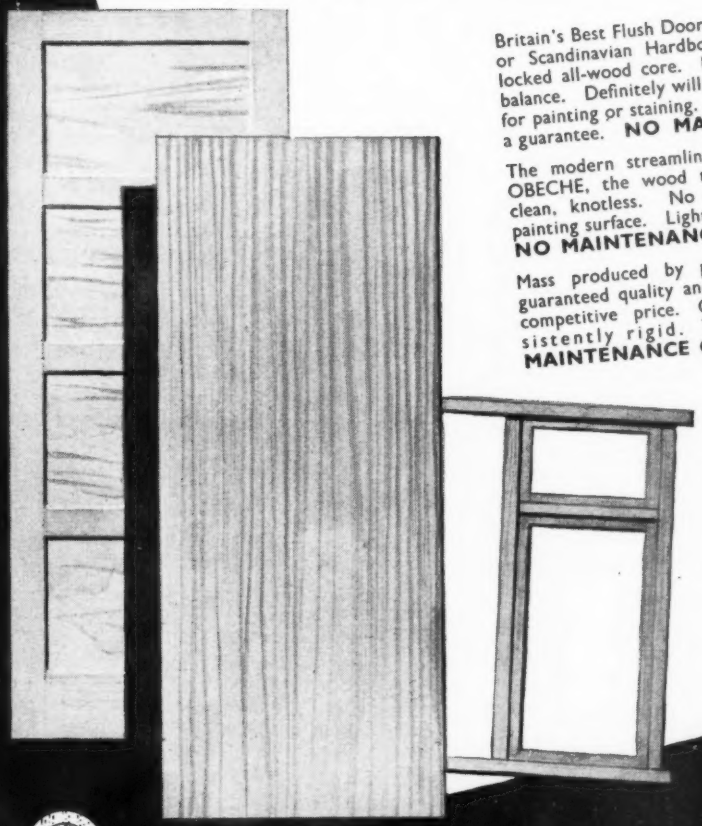
TABLE 4.—ANNUAL FUEL COSTS (£)/THERM DESIGN HEAT LOAD

—	Warm air		Radiators		Floor panels	
Design heat load (therms)	<12·5	>12·5	<12·5	>12·5	<12·5	>12·5
Solid fuels—						
Average low prices						
Coke (90s./ton)	—	—	42	31	—	—
Coal (75s./ton)	34	31	46	41	46	41
Average high prices						
Coke (120s./ton)	—	—	56	43	—	—
Coal (110s./ton)	50	46	67	60	67	60
Other fuels—						
Oil (11d./gal.)	—	—	58		—	—
Gas (15d./therm)	—	—	130		—	—
Electricity (0·7d./kWh. off-peak)	—	—	—	—	150	

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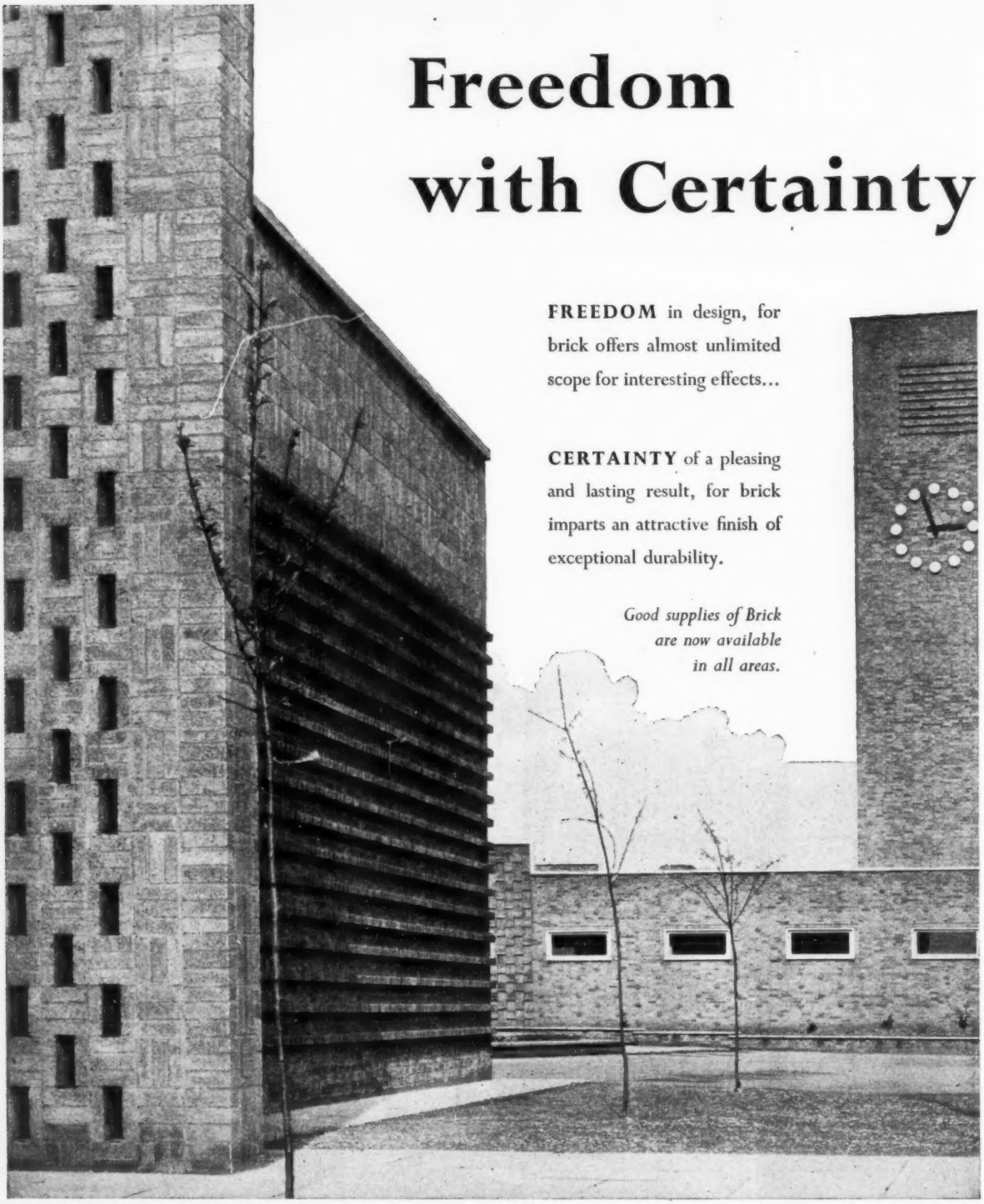
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BRICK *for Modern Building*

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methods: the cost of fuel varies with the locality, and high and low figures are shown.

From the experimental results, and from these figures, certain facts emerge: briefly, they are these:—

(1) Hand-fired coke installations show up particularly well in terms of fuel consumption. This should not be taken, however, as any criterion of the efficiency of such systems, but rather of the indolence or inefficiency of the average stoker. Undoubtedly the economy was generally achieved by allowing the temperature frequently to drop much below the design temperature for the installation, with a consequent lack of comfort. This certainly bears out the author's own experience. The corollary is that, when changing from hand-firing to a more efficient system, the fuel saving to be expected is not in fact realized: instead, greater comfort is achieved. It is sometimes difficult to convince clients of this fact.

(2) Warm air systems show a marked economy over radiator and floor panel systems. The results of the field survey and of the experimental work at Abbots Langley agree here: for the latter shows that the ratio of heat input required for similar classrooms to achieve approximately equal conditions to be 1:2:2·5 for warm air, radiators, and floor panels respectively: or, when the controls were set to permit night shut-down with low flow temperatures in each case, 1:1·5:2, before allowing for such overheads as banking and transmission losses. Clearly a system which can follow with accuracy the heat requirements of an individual space, with the large changes in occupancy which must take place in a school, and considerable solar gains through large glass areas, must be at a great advantage over the less flexible systems. The ease with which night shut-down can be achieved, with rapid warming-up in the morning, also plays its part in reducing fuel consumption. Experiment showed that although both radiator and floor panel systems could be reduced in consumption by drastically reducing night temperatures, the slow recovery in the morning precluded this.

(3) Oil shows up favourably in cost, where coal is dear: and this in spite of its use with ordinary radiator systems not able to take full advantage of intermittent heating. This result can in fact be expected, in view of the very short hours of occupancy of a school when compared with the majority of other buildings: 140 hours out of the 720 in a 30-day month. With oil, a complete shut-down is possible during periods when no heat is required. With solid fuel, there are bound to be banking losses in the case of hand-fired boilers, and kindling losses with mechanical stokers: some 15 per cent. of the total output with the former is the minimum, if the former are to stay alight, and 5 per cent. with the latter. The aggregate of consequent losses is formidable: the use of oil eliminates them.

It would be prudent here to draw attention to the dangers of corrosion damage to the boiler if very low temperatures are used during shut-down periods, especially with stoker-fired coal: mixing valves overcome this.

(4) The comparatively heavy night loss with solid fuel, for the reasons given above, robs the warm-air system of some of the economy which it can otherwise achieve by virtue of the small emission from the cabinets when shut down. The recommendation is put forward that oil-fired boilers should be used with warm-air heating, thus taking advantage of the characteristics of both fuel and heating system. This can be very strongly recommended.

(5) In all cases, the use of suitable control equipment is urged, whether in new installations or in existing ones, to achieve the maximum economy.

(6) The use of gas or electricity for school heating is virtually precluded by the high cost.

(7) There is no significant difference in the heating costs of a school with a particularly low thermal capacity when compared with one of normal construction.

(8) There is some reduction in the running costs of large installations when compared with small, due chiefly to the duplication of boiler plant and the consequent lowering of standing losses during the periods when one boiler only can be operated.

COMFORT CONDITIONS

The question of the comfort which can be provided by the various systems was also studied. Most of the experiments were carried out at the Abbots Langley School at the same time as the heat requirement tests, but some were made at other schools: rather with a view to analysing the performance of the systems when keeping people comfortably warm, than with a view to laying down theoretical standards for comfort in schools. That conditions can vary widely, and still give satisfaction, is shown by the fact that in nearly every school in the survey, the users were satisfied.

In the first place, ventilation rates were studied. The regulations lay down a minimum rate of 6 air changes per hour for most parts of the school, for which an inlet and outlet of 10-15 square feet of openable area will suffice. In three schools where measurements were made, the rates were found to be low: 11 observations showed less than one change per hour, 10 between 1 and 2, 7 between 2 and 3 and only 3, more than three air changes per hour. There was no significant difference between a school with warm air heating and schools with radiators: but, as might be expected, the outside temperature had some bearing on the ventilation rate.

Whether these low ventilation rates could be considered undesirable from the health point of view is a matter for conjecture. There were no apparent ill effects.

Whilst it does not seem likely that inadequate heating was the cause of cutting down the ventilation, the wish to reduce draughts may have been. Air movements were measured, and here again the warm air systems scored: near floor level, 10 feet/minimum was recorded with warm air systems, and 20-30 feet/minimum with radiators and floor panels. None of these velocities could however be thought objectionable unless the air were cold. The reason for cutting down ventilation rates thus remains a mystery. However, one thing remains certain, that the warm air system is better suited to take advantage of any savings arising from the reduced rate than the alternatives, and unpleasant results caused by consequent overheating are less likely.

A further interesting point revealed by the experiments, and equally applicable to other buildings than schools, is the close relationship between equivalent temperatures measured with eupatheoscopes, and air temperatures.

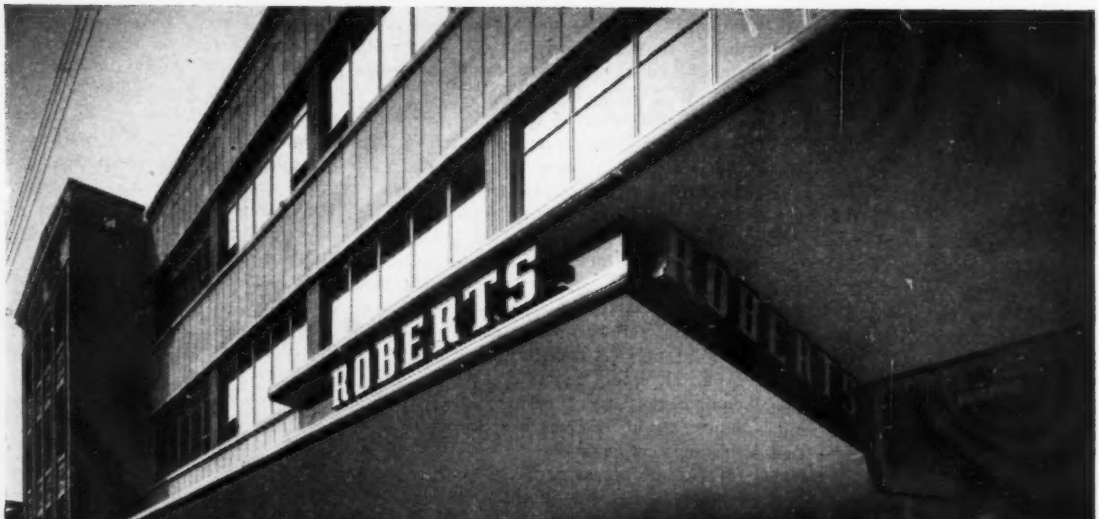
An important factor affecting comfort is the temperature gradient in a room. Here, the warm air systems showed up less well. It is generally accepted, that very large positive gradients produce the hot head, cold feet sensation which is objectionable. The installations with high level outputs produced such gradients: but when the equipment was modified to give low level discharge, the resulting gradient was comparable to that of the radiator systems and though positive, not undesirably steep. Unfortunately, the leaving air temperature and volume of air circulated in the systems under review is not stated: this has a pronounced effect. The floor panel systems gave a negative gradient.

FLOOR FINISHES

It is generally accepted that a warm floor is a source of comfort: and experiments were carried out, to discover the effect of floor insulation with the warmed air system. The results were gratifying. Whereas with thermoplastic tiles, the average floor temperature was 2°F. below air temperature at 6 in. above floor level and nearly 11°F. below that at 3 feet, the same floor covered with 1 in. cork slab was 1°F. higher than air temperature at 6 in. and only 7°F. below that at 3 feet. Whilst such a floor is not economically practicable, it is considered that a 1 in. timber or ¼ in. cork tile floor would have suitable thermal characteristics to produce a floor temperature no less than the air at 6 in., and thus would offer an appreciable advantage over the thermoplastic floor.

CLASSIFICATIONS FOR INFORMATION CENTRE

1 Sociology. 2 Planning: General. 3 Planning: Regional & National. 4 Planning: Urban & Rural. 5 Planning: Public Utilities. 6 Planning: Social & Recreational. 7 Practice. 8 Surveying & Specification. 9 Design: General. 10 Design: Building Types. 11 Materials: General. 12 Materials: Metal. 13 Materials: Timber. 14 Materials: Concrete. 15 Materials: Applied Finishes & Treatments. 16 Materials: Miscellaneous. 17 Construction: General. 18 Construction: Theory. 19 Construction: Details. 20 Construction: Complete Structures. 21 Construction: Miscellaneous. 22 Sound Insulation & Acoustics. 23 Heating & Ventilation. 24 Lighting. 25 Water Supply & Sanitation. 26 Services & Equipment: Miscellaneous. 27 Furniture & Fittings. 28 Miscellaneous.



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28 MISCELLANEOUS
standardisation and the Japanese house

All discussions on modular co-ordination quote the example of the Japanese house. This week we review a book which gives English readers a sufficiently technical description of the Japanese house to enable them to tell in what sense this quotation is apt.*

The debt of western architecture to the Japanese is threefold: first there is the debt of asceticism, of simplification; second, that of oneness with nature, naturalism; third, that of standardisation. These ideas are gathered together in the Japanese house, which has been an object of more or less conscious emulation in the west ever since the beginnings of the modern movement. A book, therefore, which, like this one, sets out to give technical as well as historical information about the Japanese house is an important document.

The author, Tetsuro Yoshida, establishes that as an object made to serve a purpose the Japanese house differs on almost every possible count from the English house. It is made primarily to guard against exceedingly trying summer conditions. It is deliberately draughty: the whole paraphernalia of interchangeable screens and grilles is designed to try and secure four air-changes an hour during the hot, damp, airless summer months.

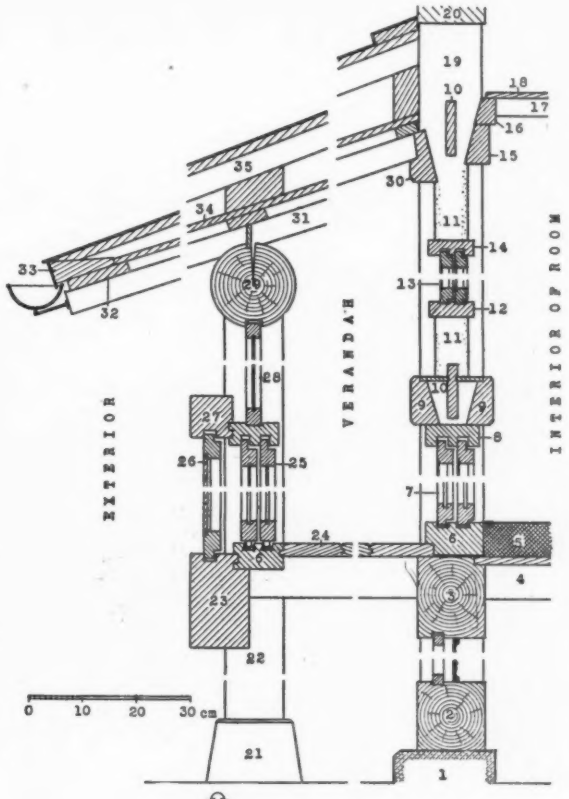
COMPARISON WITH WESTERN HOUSE

Both the individual rooms and the houses themselves are notably smaller on average than western rooms and houses: a "four-and-a-half mat room," which is a fair average size, is only 81 square feet, and the small family house is only a matter of 500-600 square feet. This is accountable to the fact that there is no permanent furniture in the western sense: everyone squats on the floor, and everything needed in the way of low tables or mattresses can be brought out from some cupboard. Rooms can therefore serve for any purpose. Further, since fixed internal partitions are few, rooms can be opened to one another almost at will. Heating in the western sense hardly exists and there is virtually no sound insulation. Interchangeability both in room use and in the substitution of different external wall and window units at night and at different seasons of the year stems partly from custom and climatic conditions, but also partly from the value the

* *The Japanese house and garden* by Tetsuro Yoshida. Architectural Press. 60s.

Fig. 1. Detail showing construction of one-storey house. Note the traditional round section veranda eaves beam (29) and the wide clearance on all sliding parts to enable them to be lifted out by hand.

KEY
1, stone foundation. 2, sleeper. 3, primary joist. 4, secondary joist. 5, mat. 6, lower wooden track of sliding doors. 7, doors with translucent paper. 8, upper wooden track of sliding doors. 9, continuous transom. 10, board. 11, lathe and mud wall. 12, grooved sill for clerestorey window. 13, papered shutter of clerestorey window. 14, grooved lintel of clerestorey window. 15, cornice. 16, ceiling frame. 17, ceiling joist. 18, ceiling board. 19, post. 20, eaves beam. 21, padstone. 22, veranda post. 23, plinth beam. 24, floorboard. 25, glazed doors. 26, wooden shutter. 27, continuous shutter lintel. 28, clerestorey window. 29, veranda eaves beam. 30, support for rafters. 31, ceiling rafters. 32, filler. 33, wedged filler to close cavity ceiling. 34, ceiling boards. 35, rafters.



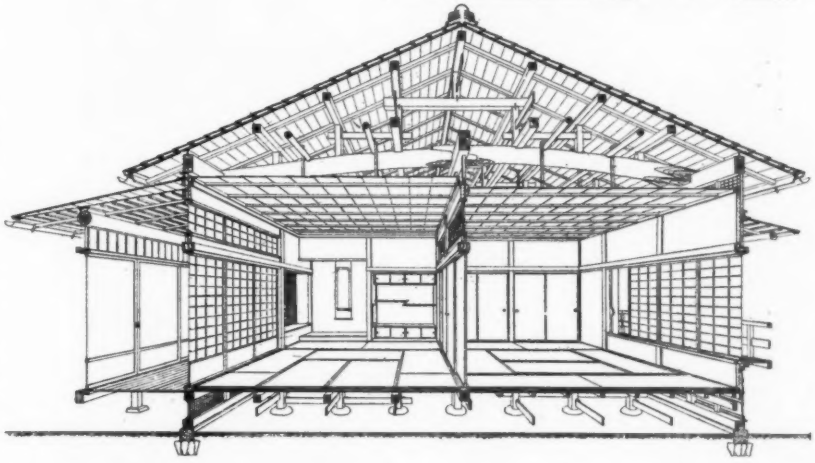


Fig. 2 (above), perspective section through a one-storied house. The ceilings are composed of thin wood panels laid in wood battens, the floor of sewn rice-straw mats (Tatami) laid on wood boarding.

KEYS
(Extreme left)
1. Entrance hall. 2. Living room (6 mats). 3. Dining room (4 mats). 4. Kitchen. 5. Privy. *a*. Tokonoma. *b*. Wall-cupboard.

(Left)
1. Entrance hall. 2. Reception room (6 mats). 3. Living room (6 mats). 4. Dining room (3 mats). 5. Kitchen. 6. Privy. *a*. Tokonoma. *b*. Wall-cupboard.

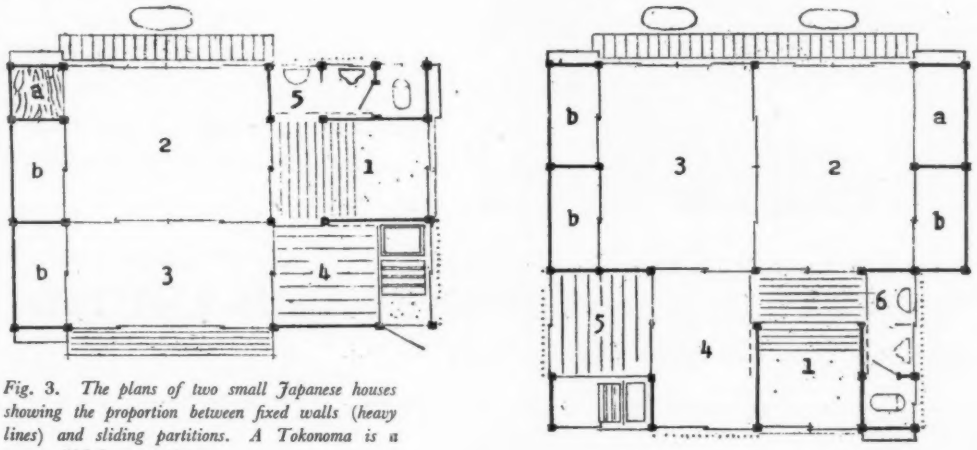
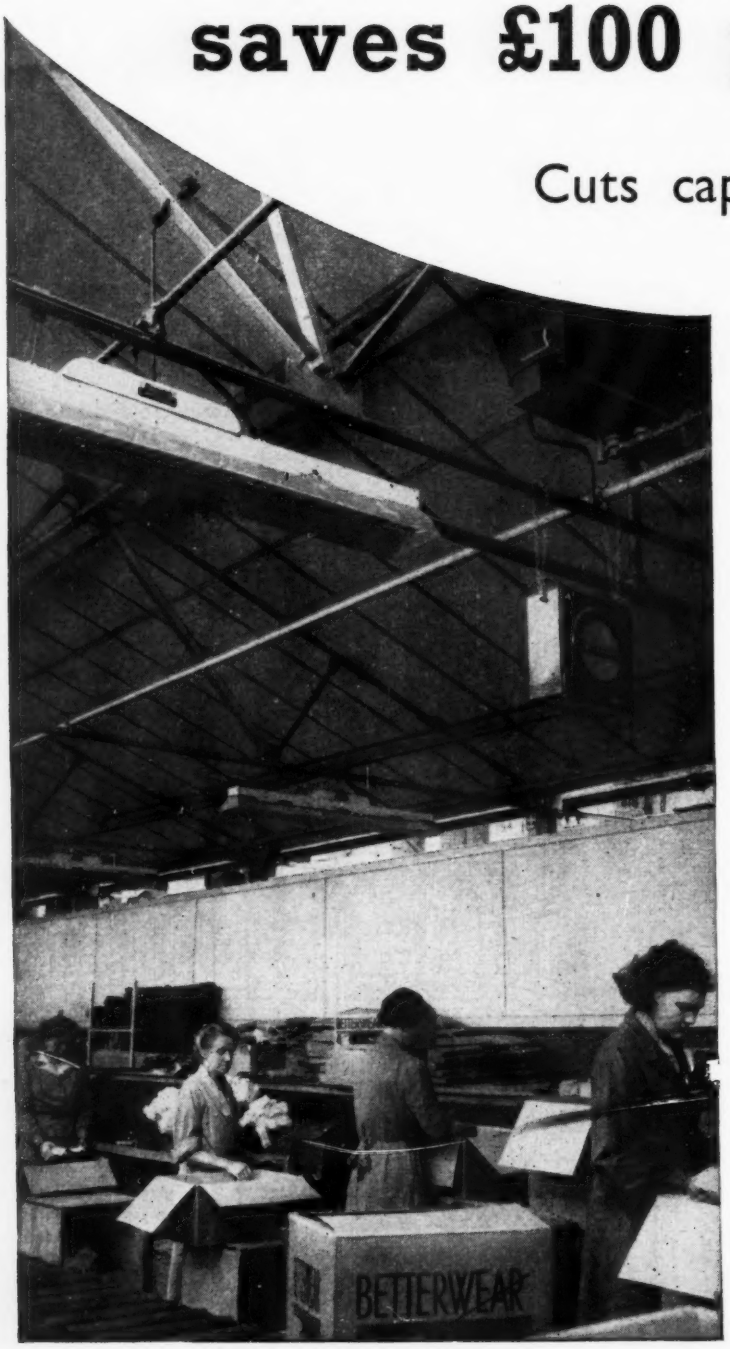


Fig. 3. The plans of two small Japanese houses showing the proportion between fixed walls (heavy lines) and sliding partitions. A Tokonoma is a recess which houses a picture.

Lloyd roof insulation saves £100 per week

Cuts capital spending, too



Since 1946 the roof of the Betterwear Products factory at Romford has been lined with ½" Lloyd Insulation Board fixed by the Lloyd Talon System. During these years, building extensions have almost doubled the floor area, yet the factory is still heated by the same plant using the same amount of coal as was needed before the expansion. Lloyd Insulation has saved heavy capital expenditure of more than £2,500 on extra heating plant and is regularly saving about £100 a week in winter fuel bills.

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Japanese set on impermanence. The Japanese have a particularly lively sense of the truth that they are here today and gone tomorrow. Where the western house is fondly intended to stand for ever, the Japanese house is only built for a short life. It is very significant that the Japanese have until recent times sought no technique to guard against earthquake shocks: they have never used cross bracings. Their structural timber joints are of cabinet design, exquisitely made but not particularly strong.

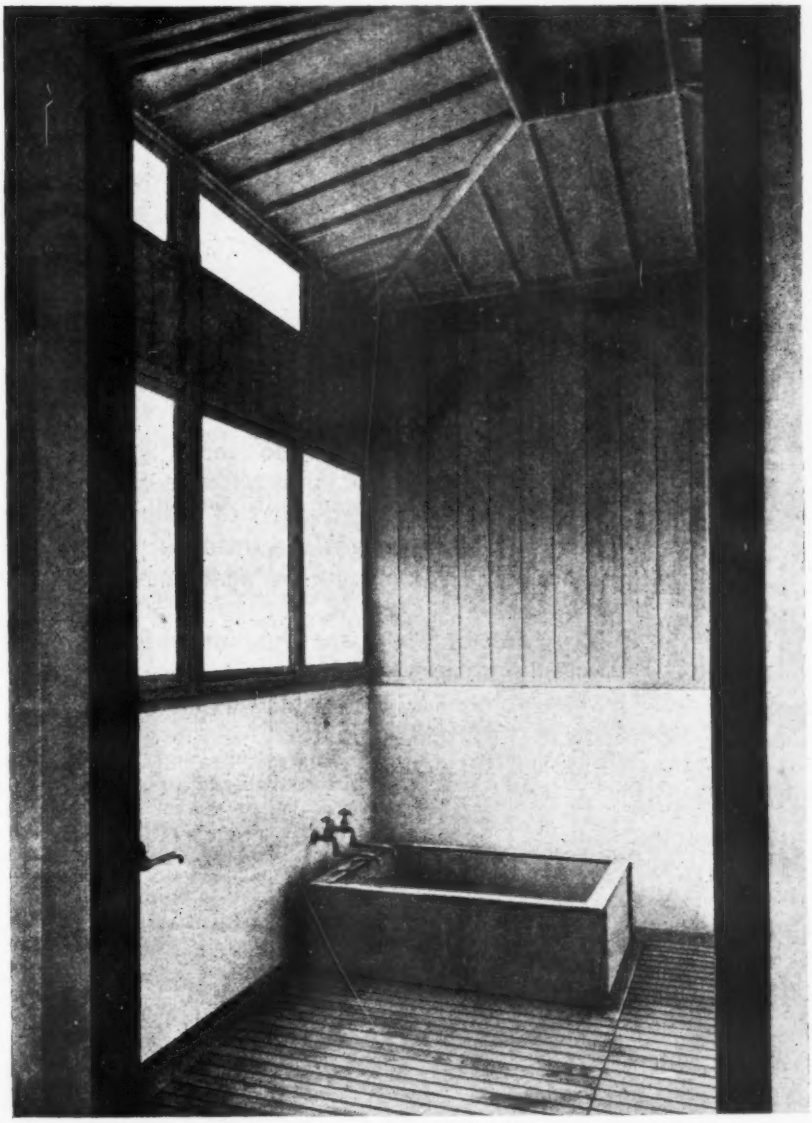
STANDARDISATION

The standardisation of building parts—which is described in detail in an appendix to the book—is of two kinds. There is the standardisation of the mat (which is virtually 6 ft. by 3 ft.) and there is the standardisation of the wood scantlings (i.e. their sections, not their lengths) which varies in each case according to the room size; that is, according to the number of mats in a room. There is, in fact, some obscurity here, as it is difficult to see how, in a house which contains, say, a 3-mat room, a 4½-mat room and a 6-mat room, the roof members common to all three can be sized so that they conform to the scantlings specified for each of these room sizes. The system of Japanese standardisation suggests that its object is aesthetic (i.e. that it springs from a sense of the rightness of proportion) and that it has not been dictated by any thoughts about the ease of production. Many of the dimensions given are not exact but give an upper and lower limit, and the fact that the dimensions of practically every wood member in a house is varied by five different multiples corresponding to the five common room sizes gives rise to a formidable dimensional variation. Further, the complexity of the joints suggests that the builders were not concerned to save themselves trouble. It would be interesting to know the nature of the original agreements which laid down these standards and how the traditional building industry functions. For—apart from the striking convention of the mats—it is doubtful whether the Japanese timber sections are in fact more standardised than they were, for instance, in England during the late Georgian period.

CONCLUSION

From the strictly functional standpoint it seems that the Japanese house comes out neither better nor worse than the traditional English house. Its superiority lies in the success with which it reflects and thus tends to enforce a certain attitude to life and in the high quality and permanent value of that attitude. It is interesting to notice that at a very early phase of their history (that of the Shinden-Zukuri style: 10th-12th centuries) the Japanese adopted symmetry but gave it up, and that at a later phase (that of the late Shoin-Zukuri: 16th century) they favoured rich and sumptuous interiors but gave those up. Asceticism and naturalism which were associated with the rise of the tea cult in the 17th century were therefore the result of a deliberate, and, as it turned out, a lasting choice. In pursuing it, functionalism in our sense is made subject to the evoking of a state of mind. This can be seen very well in the attitude to light. Paper is generally preferred to glass as a window covering, not directly because of the amount of light it gives but because it induces a contemplative frame of mind. Glass when it is used is often confined to the lower parts of a window so that people squatting on the floor can see out into the garden.

It can be well imagined that an architectural tradition of this kind suffers from contact with modern building: its assimilative power is not great. The electric light bulb, which is now nearly universal, has effectively destroyed contemplation during the hours of darkness; and in the field of planning there has arisen an uncomfortable compromise in which houses have some western suites of rooms and the remainder Japanese. It is



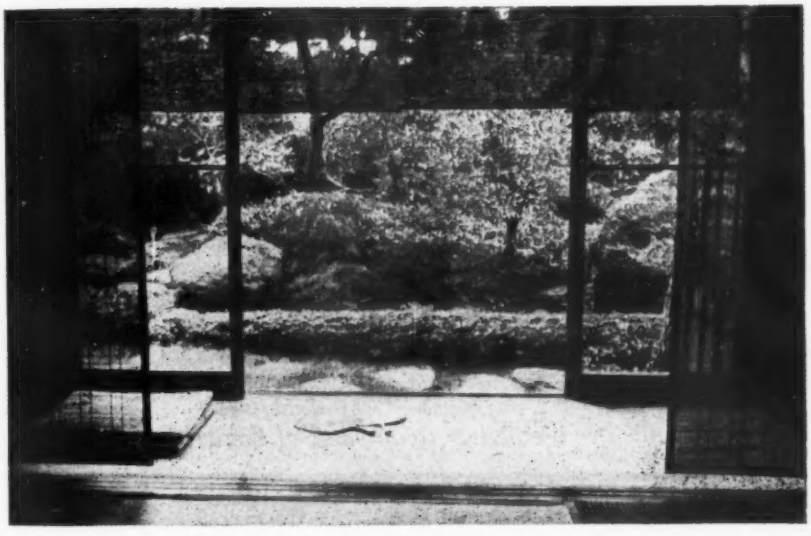
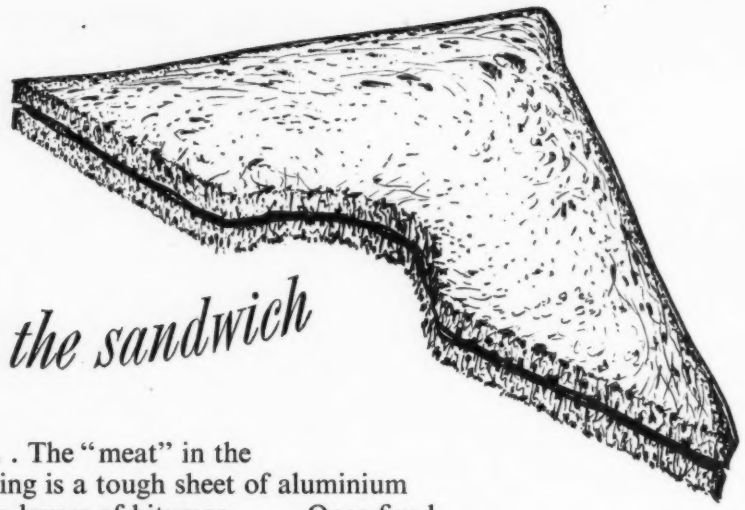


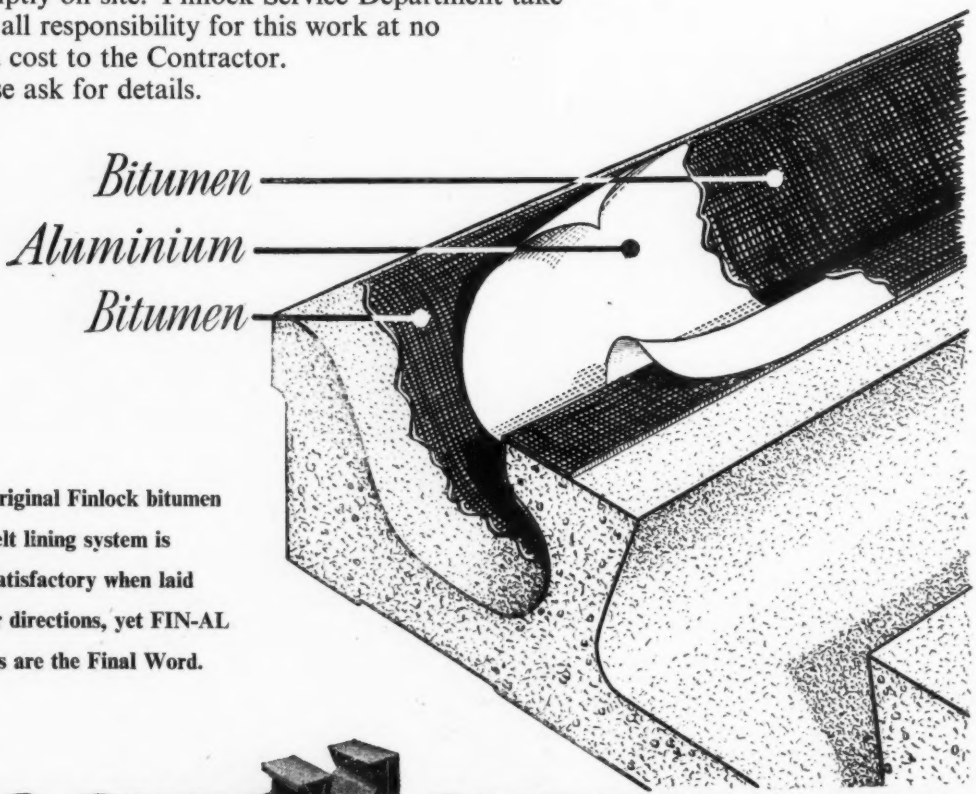
Fig. 4. Above, a bathroom with a fixed wooden bath of Hinoki wood. Fig. 5. Below, room in summer with bamboo curtains fixed in place of Shoji (sliding windows clad with transparent paper). Note the finished floor level (i.e., the top of the mat) flush with the sill.



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evident—as Tetsuro Yoshida readily admits—that the Japanese house is on the way out. It is only to be hoped that this admirable book will have helped us to learn its lesson before the house itself has become a museum memory.

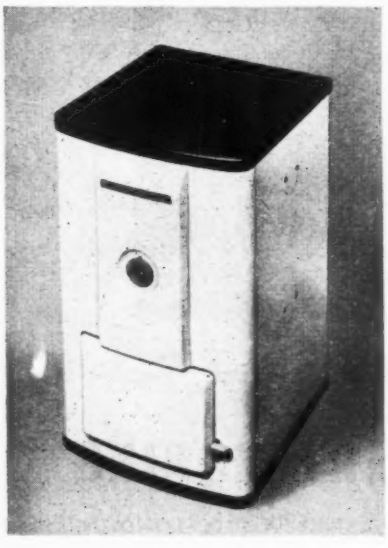
THE INDUSTRY

From the Industry this week Brian Grant reports on a new convector fire, a range of small circuit breakers, electric water heaters, two solid fuel boilers and a vinyl-asbestos tile.

A NEW CONVECTOR FIRE

The photograph on the right shows the new Parkray No. 3 convector fire, which will fit both the standard 18 in. or 16 in. wide fireplace openings: if the opening is more than 22 in. high extra louvres are fitted to the top of the fire. The fire burns on the down-draught system, the combustion products being mixed with pre-heated secondary air so that, even with slack coal, smoke is reduced to a minimum. An adjustable throat restrictor reduces to about one quarter the heat normally lost up the flue, and this is controlled by the knob in the upper right hand corner of the fireplace opening. Installation is simple as there is an adjustable soffit plate for sealing the fire into the flue opening, and there is also provision for gas lighting.

Recommended fuels are coke and household coal, but anthracite or manufactured fuels may also be used. A deepening bar is available for burning the larger sizes of coke, and also a plate for overnight burning. The fire will heat rooms up to 3,300 cu. ft. insulated to Egerton standards, or 2,500 cu. ft. if of pre-war traditional construction. Prices vary from £12 12s. according to finish. (*Radiation Group Sales Ltd., Park Foundry (Belper) Ltd., Belper, Nr. Derby.*)



New Agamatic 30/80 boiler.

SMALL CIRCUIT BREAKERS

A range of small circuit breakers has recently been introduced by Dorman & Smith. These devices are used instead of fuses, and have the advantages that a circuit cannot be overloaded by the insertion of a fuse with a higher rating. In the event of minor overloads these circuit breakers will interrupt the supply after a short delay, but with a circuit fault the supply is instantaneously broken magnetically. These breakers can be obtained with ratings of 5, 15 and 30 amps, and cost 17s. 6d. each. Four standard sizes of flush and surface mounting distribution boxes are produced, providing 2, 4, 8 and 12 ways, or intermediate sizes are available by using blanking plates. (*Dorman & Smith Ltd., Ordsal Electrical Works, Manchester 5.*)

ELECTRICAL EQUIPMENT

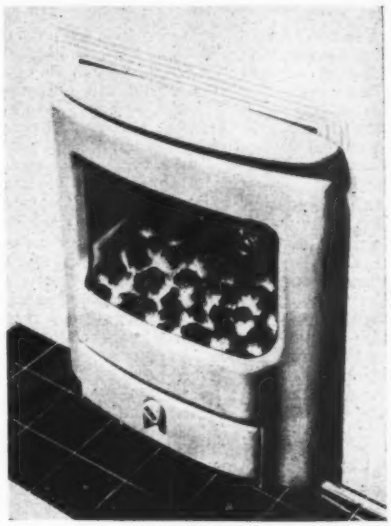
A series of leaflets from Heatrae Ltd. describe a number of electrical water heating devices. A sink heater known as the Lido is produced in 1½ and 3 gallon sizes at prices of £10 5s. and £11 15s. (plus purchase tax), each model being produced with two electrical loadings, ¾ or 1 kilowatt for the 1½ gallon and 1 or 2 kilowatts for the 3 gallon. The higher loadings use no more current, but naturally give a quicker recovery time. Other types of storage heater are also produced, including floor mounting models with capacities up to 100 gallons and loadings of 9 kilowatts and flameproof water heaters and air heaters certified for gases in groups 2 and 3.

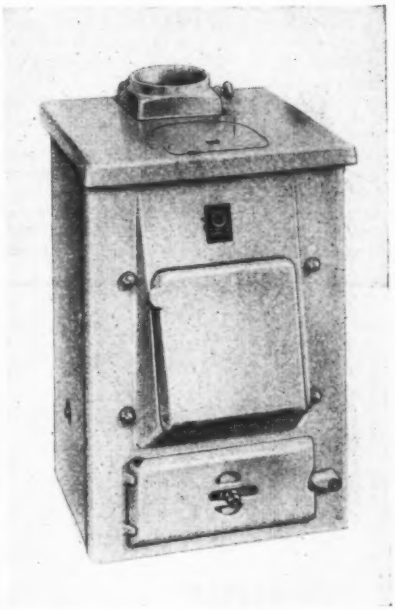
Immersion heaters are also produced for both vertical and horizontal installation, with or without thermostats. These heaters are all to B.S. 1556. (*Heatrae Ltd., Norwich.*)

TWO NEW BOILERS

The photograph on the left shows the new Agamatic 30/80 boiler which has been designed for the small or medium sized house in which a liberal supply of hot water is required. Two or three radiators can be heated as well as the hot water supply, and the boiler has been specifically designed to burn coke. The manufacturers claim that, even at maximum output, attention is only needed twice in 24 hours. The boiler, finished in cream and [black] vitreous enamel, has an adjustable thermostat and the price is £42 10s. (*Aga Heat Ltd., 20 North Audley St., London, W.1.*)

The second new boiler is the Ideal O-DE (see photograph right), which replaces the O-DC model. The price remains the same but the draught controls have been modified, and appearance has also been improved by enamelled side jackets. Refuelling has also been made easier by shaking the charging lid so that it is flat at the front edge to take a shovel. The boiler is rated at 20,000 BTU's per hour and is suitable for use with a 25 to 30 gallon cylinder. (*Ideal Boilers & Radiators Ltd., Ideal Works, Hull.*)





Top, Parkray No. 3 convector fire. Above: Ideal O-DE boiler.

NEW SEMI-FLEXIBLE TILE

Accoflex is a new vinyl-asbestos tile which is unaffected by dilute acids, and is at the same time flexible enough to be laid on timber floors as well as direct on concrete. The tiles are produced in 14 colours and measure 9 in. by 9 in. They can, if necessary, be hand cut to allow trade marks or other devices to be produced. A special range of tiles is also produced incorporating special designs for use in schools, hotels and other buildings: these measure either 9 in. by 9 in. or 12 in. by 12 in. (*The Armstrong Cork Co. Ltd., Honeypot Lane, London, N.W.9.*)

Buildings Illustrated

County Primary School, Sugar Hill, Newton Aycliffe, Co. Durham, for the Durham County Council Education Committee. (Pages 419-432.) Architects and Quantity Surveyors: G. R. Clayton, F.R.I.B.A., County Architect, G. W. Gelson, A.R.I.B.A., Deputy Architect (Education), in collaboration with Grenfell Baines & Hargreaves, A./A.R.I.B.A., A.M.T.P.I., Assistant Architects, W. White, A.R.I.B.A. (design and details), R. Browne, M.C., B.ARCH. (DUNELM), A.R.I.B.A., A.M.T.P.I. (Supervision). Consultants, heating ventilation and water services: R. W. Gregory & Partners. Electrical installation: Electrical Department, Durham County Council. General Contractors: G. Stephenson Ltd. Sub-contractors: reinforced concrete (design and fabric), Ferrocon Engineering Co. Ltd.; bricks, structural steel, precast concrete, Foster Bros. Ltd.; facing, Samuel Tyzack & Co. Ltd.; tiles, Commercial Marble & Tiles Ltd.; roofing, Stramit Boards Ltd.; roofing felt, Ruberoid Co. Ltd.; partitions, metal-faced plywood, Venesta Ltd.; glass, Pilkington Bros. Ltd., per Elders, Walker & Co. Ltd.; wood block flooring, J. A. Hewetson & Co. Ltd.; semastic tiles, Limmer & Trinidad Lake Asphalt Co. Ltd.; cork tiles, Cork Insulation & Asbestos Co. Ltd.; waterproofing membrane, Evode Ltd.; central heating, G. S. Akinhead & Co. Ltd.; electrical installation, R. V. Hogg & Co.; electric light fixtures, Falk, Stadelman & Co. Ltd.; gas supply, The Northern Gas Board; plumbing, T. L. Bradley; sanitary fittings, Morrison, Ingram & Co. Ltd.; precast concrete stair treads, Samuel Tyzack & Co. Ltd.; door furniture, James Gibbons Ltd., through J. Armstrong Todd; casement kitchen vallance metal windows, Mellowes & Co. Ltd.; roller shutters, Roller Shutters Ltd.; duct covers, Broads Manufacturing Co. Ltd.; plaster, Carlisle plasters by S. McCullough; wallpaper, Crown Wallpapers Ltd.; furniture, Mann Egerton & Co. Ltd.; cloakroom fittings, Parker, Winder & Achurch Ltd.; paint, Docker Bros. Ltd., through Edwin Turner Ltd.

The following are contractors for buildings illustrated last week.

Extension to the Queen's Head, Bishop Auckland. (Page 386.) Architect: R. W. Robson, L.R.I.B.A. Assistant architects: Robert Bowdon, A.R.I.B.A., Leonard Oliphant. General contractor: Snowdon Bros. Ltd., Sunderland. Sub-contractors: Bricks, Eldon Brick Co. Ltd.; windows, The Crittall Manufacturing Co. Ltd.; kitchen equipment, Stotts of Oldham; electrician, White & French Ltd., Sunderland; lighting fittings, Falk, Stadelman & Co. Ltd.; paints, Camrex Paints Ltd., Sunderland; faience plaques; Carter & Co. Ltd., Poole; furniture and fittings, W. C. Thompson Ltd., Sunderland.

Houses and Flats (page 386): Assistant Architects: William Ramsay, A.R.I.B.A.; Robert Bowden, A.R.I.B.A. Quantity Surveyors: Turner & Ing. Sub-contractors: bricks, Crossleys' Ltd.; windows, The Crittell Mfg. Co. Ltd.; flooring, Accotile & Windsor Flooring; roofing, Langley's Ltd., Hadrow, and Marley Tile Co. Ltd.; kitchen furniture, Peerless Built-in-Furniture Ltd.; paints, Dulux, Leyland; Aycliffe Paints Ltd., and Parsons'; heating appliance, Ideal Neo-Fire; general building materials, Henry Foster & Sons Ltd.

Houses and Garages at Newton Aycliffe, Co. Durham. (Page 386.) Architect: R. W. Robson, L.R.I.B.A. Assistant Architects: Robert Bowdon, A.R.I.B.A., Leonard Oliphant. General contractor: The Corporation Direct Labour Department. Sub-contractors: Bricks, Crossley's Ltd., London Brick Ltd., Lumley Brick Co. Ltd.; Blacketts' Ltd.; windows (wood casement) W. Gray Ltd.; roofing tiles, Greenwoods Tileries Ltd., Lincs.; Samuel Tyzack & Co. Ltd.; Marley Tile Co. Ltd.; general building materials, Henry Foster & Sons Ltd.; heating appliance, Fedfyre Bacboiler; sanitary fittings, Ideal Vitreous China; flooring, Accotile.

Berwick Hills Junior and Infants' School. (Page 404.) Architect: Philip R. Middleton, DIP.ARCH., A.R.I.B.A. Assistant Architects: T. Malcolm, Student, R.I.B.A.; F. Sibley, Student, R.I.B.A.; P. Holmes, Student, R.I.B.A. General Contractor: Leslie & Co Ltd. Sub-contractors: structural steelwork, Lothian Structural Developments; wood wool roofing slabs, Stella Building Products; roofing felt, Ruberoid Co. Ltd.; metal windows and doors, Williams & Williams Ltd.; electrical installation, Doves (Darlington) Ltd.; heating installation, G. N. Haden & Co. Ltd.; Bison precast floor slabs, Concrete Ltd.; cork tile flooring, Cork Insulation & Asbestos Co.; sanitary fittings, Adamsez & Shires; playgrounds and paths, Tarslag Ltd.; floor heating, Benham & Sons Ltd.; glazed wall finish, Decorock Ltd.; reconstructed stone, Kingston Concrete Products Ltd.; accotile flooring, Rowan & Boden Ltd.; suspended ceilings, Johnson Bros., Bowater Ceiling.

Royal Arms at Peterlee (Page 405.) Architect: Kitchen & Co. Main Contractors: Hinscliffe Hewitt & Sons Ltd. Sub-contractors: roofing, Digby Nelson & Sons Ltd.; electrician, A. Anderson & Son (Electrical Engineers) Ltd.; heating, Steels Engineering Co. Ltd.; precast concrete units, Concrete Ltd.; bricks, Fencehouses Brickworks Ltd.; steel windows, Middlesbrough Casements Ltd.; raft reinforcement, Richard Hill Ltd.; counter and fitting, W. C. Thompson Ltd.; neon lighting, Elders, Walker & Co. Ltd.; hardwood flooring, A. M. McDougall & Son Ltd.

Factory for the Guisborough Shirt Co. Ltd. (Page 405.) Architects: Kitching & Co. Main Contractors: Geo. Dougill & Sons Ltd. Sub-contractors: structural steel, Palmers Hebburn Co. Ltd.; heating and lighting consultants, Cairns & Byles Ltd.; heating contractors, W. Richardson & Co. Ltd.; electrical contractors, B. French Ltd.; precast floor beams, Concrete Ltd.; piling, Pressure Piling Co. Ltd.; steel windows, Middlesbrough Casements Ltd.; roofing, D. Anderson & Son Ltd.; roof glazing, Glaslok Ltd.; floor tiles, Flortile Ltd.; sanitary fittings, Shanks & Co. Ltd.

Housing for the Billingham Urban District Council. (Page 405.) Architects: Kitching & Co. Main Contractors: Stephen Coates Ltd. Sub-contractors: roof tiling, W. B. Robinson & Son Ltd.; electrical, A. Anderson & Son (Electrical Engineers) Ltd.; plumbing, Watson & Coates; floor tiling, Limmer & Trinidad Asphalt Co. Ltd.

Ablution Centre for J. & R. Ritchie, Ltd., Acklam Foundry, Middlesbrough. (Page 405.) Architect: Kitching & Co. Main Contractors: Geo. Dougill & Sons Ltd. Sub-contractors: roofing slabs, Thermacoust Ltd.; heating and hot water installation, Rosser & Russell Ltd.; electrical, Graham Bros.; tiling, Commercial Marble & Tiles Ltd.

Demountable partitions by Compactom Ltd. on the Fourth Floor, Time and Life Building W1

Architect: Michael Rosenauer F.R.I.B.A.



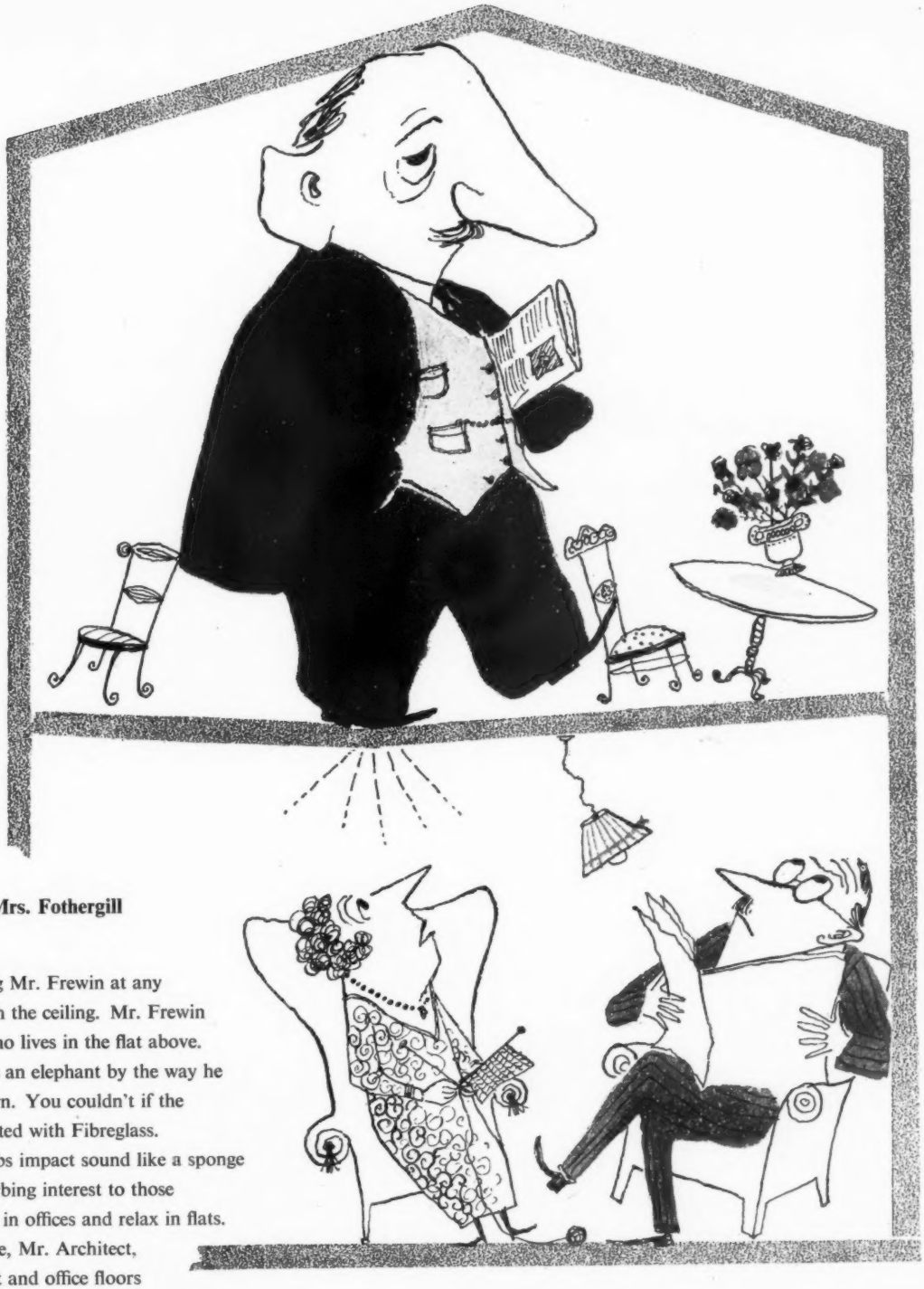
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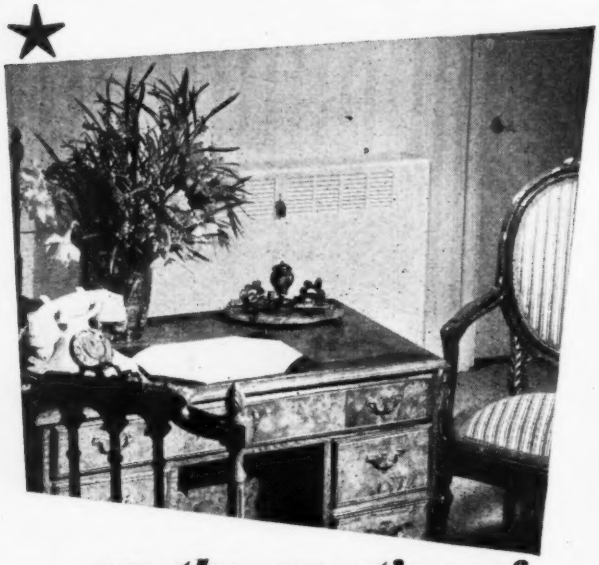


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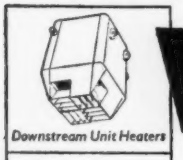
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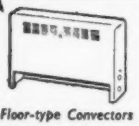
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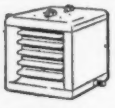
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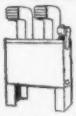
Floor-type Convectors



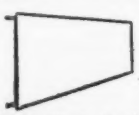
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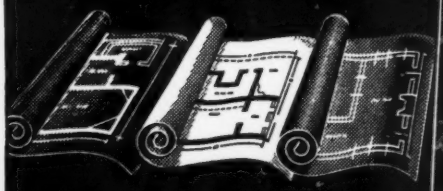
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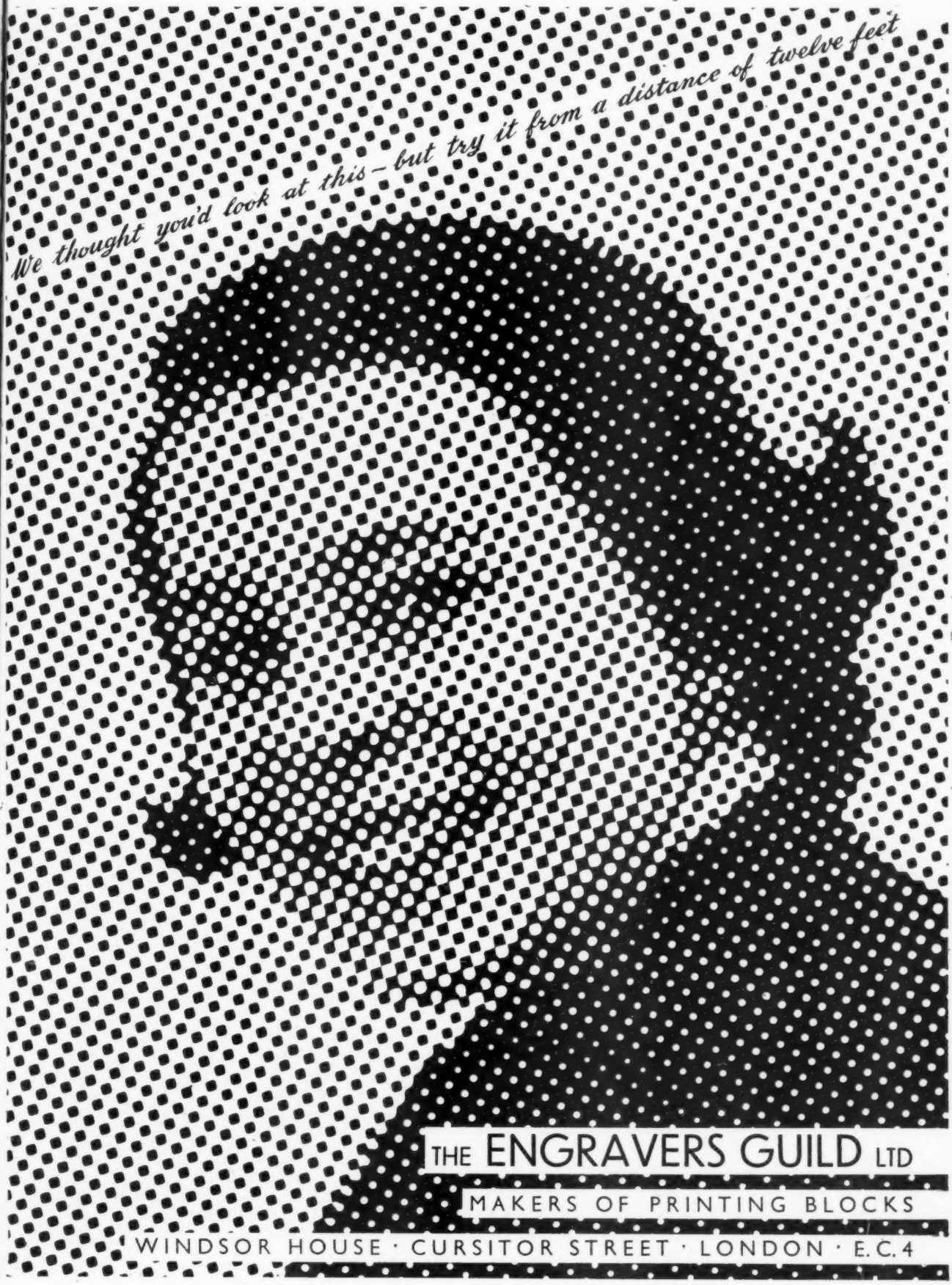
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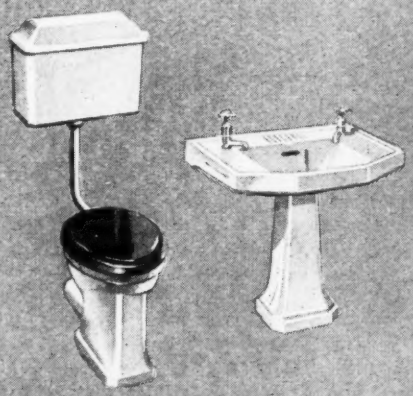
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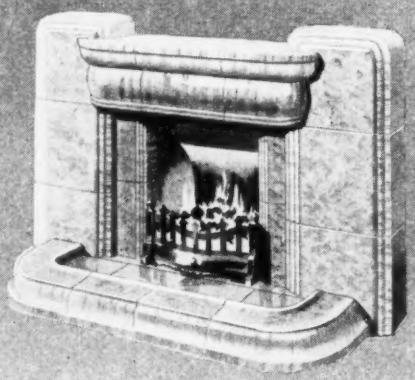
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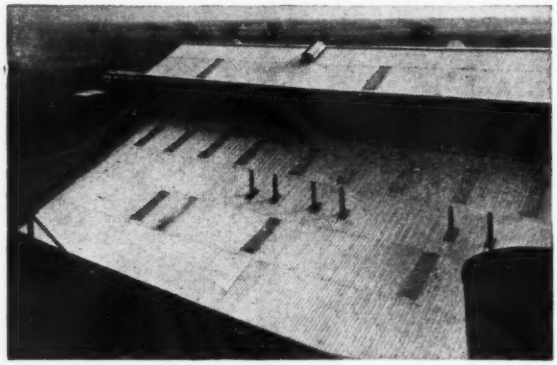
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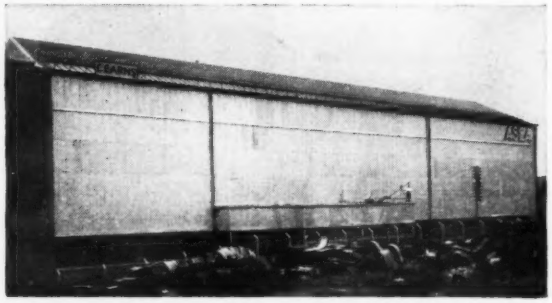
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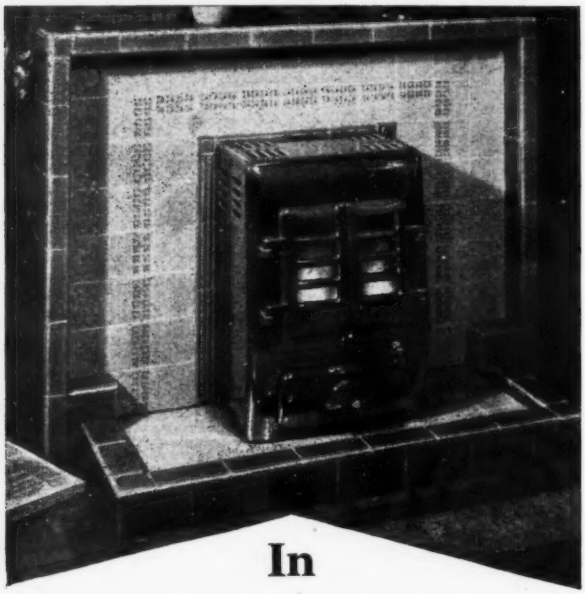
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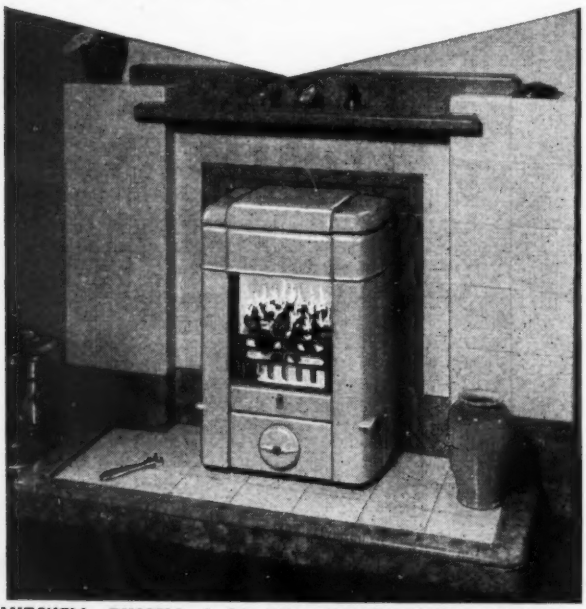
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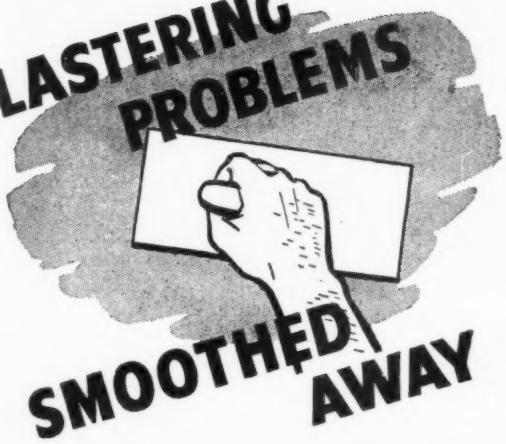
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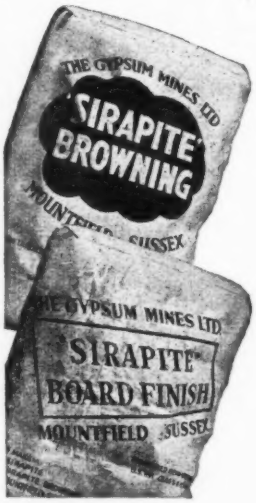
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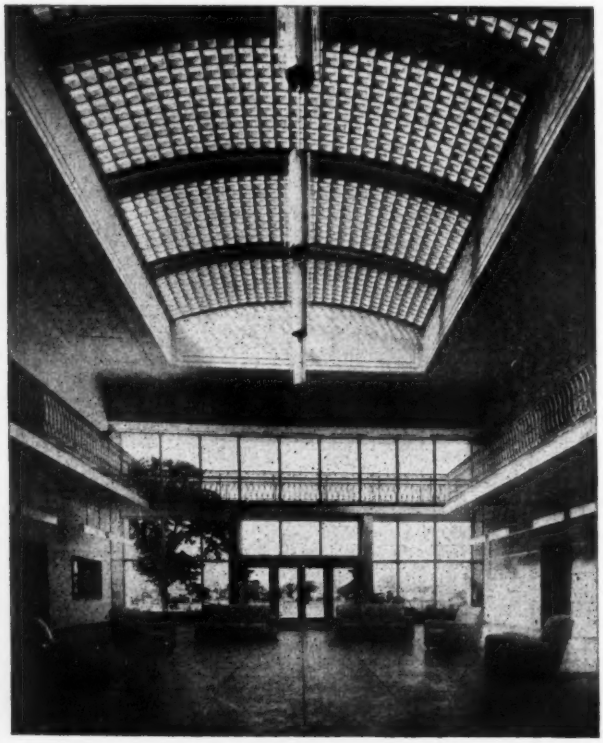
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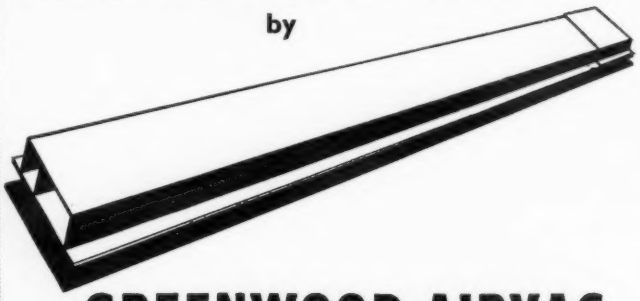
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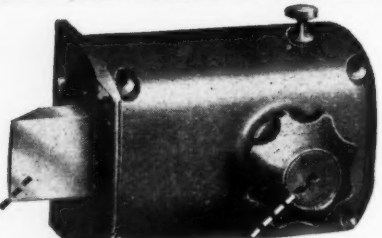
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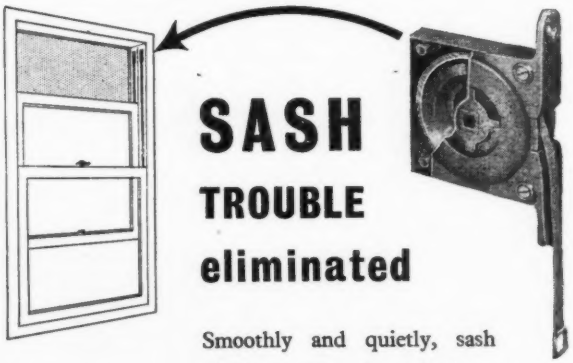
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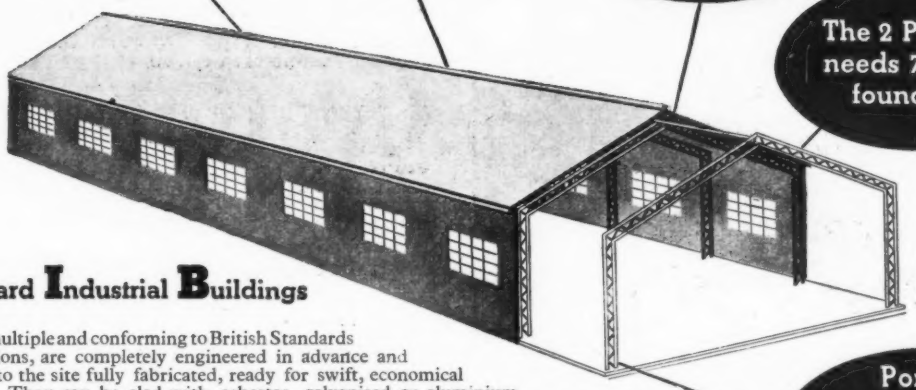
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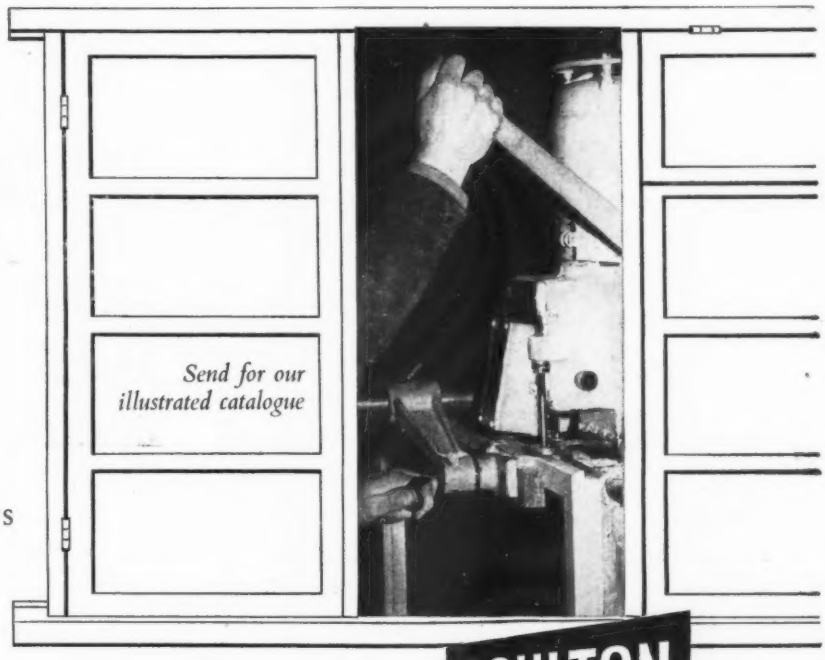
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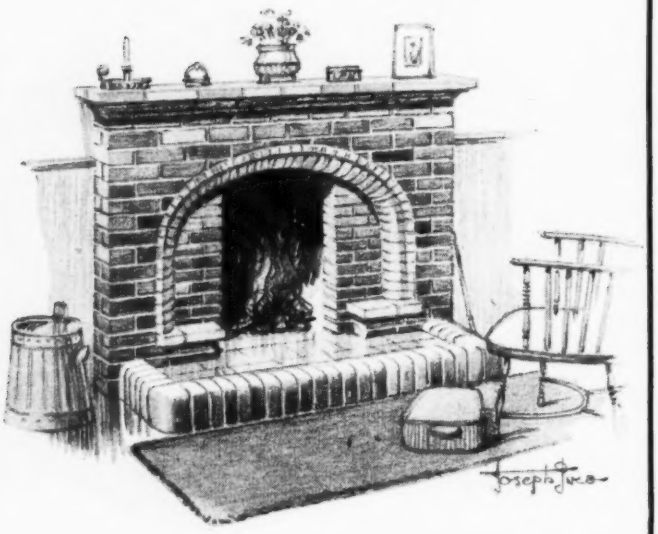


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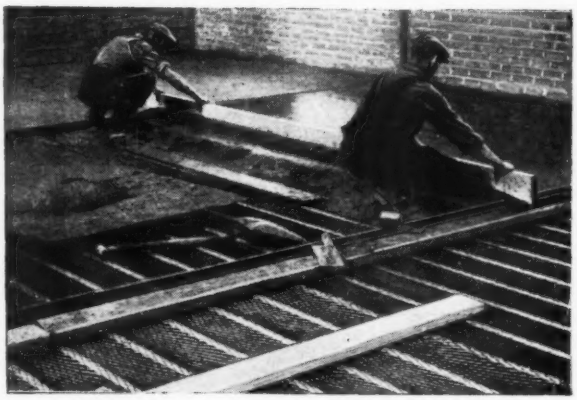
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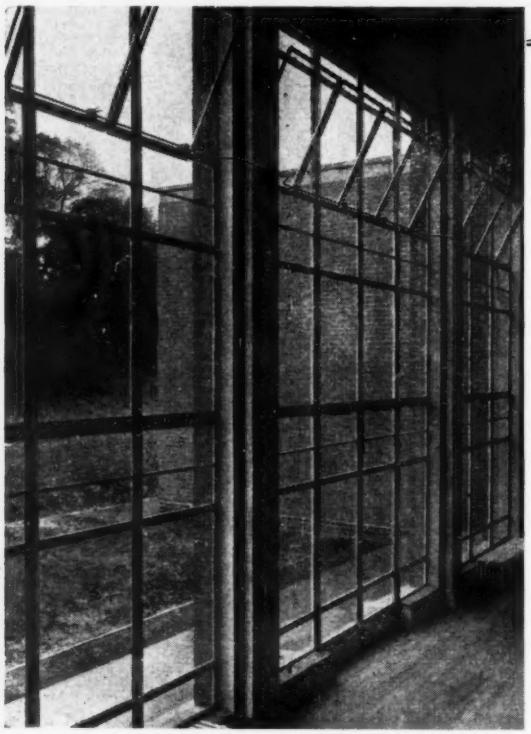
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Architect: J. Harrison, A.R.I.B.A., Architect to the Surrey County Council. Window Installation by C. E. Welstead Ltd., Croydon.

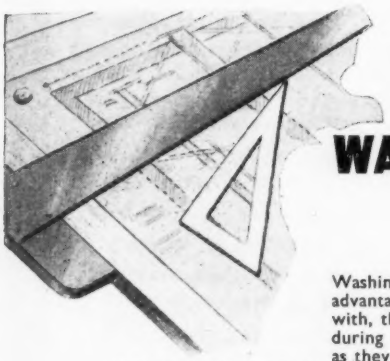
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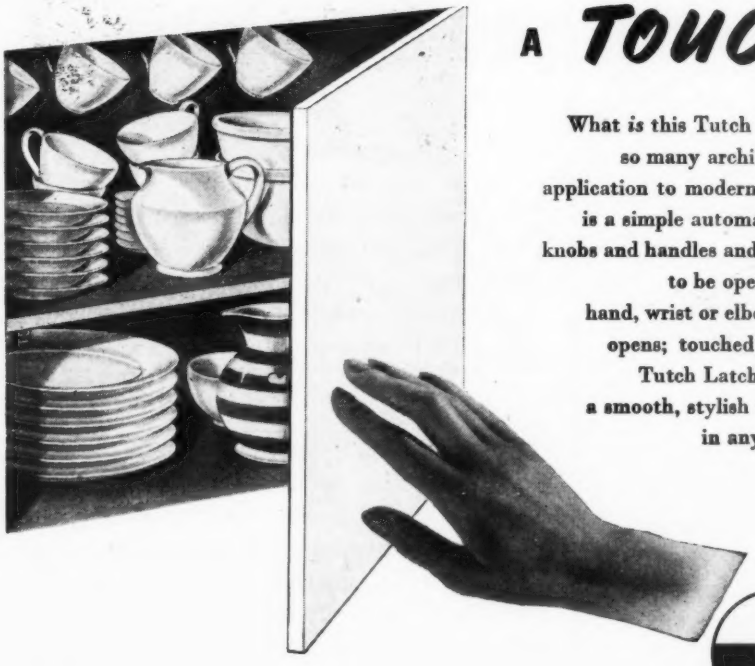
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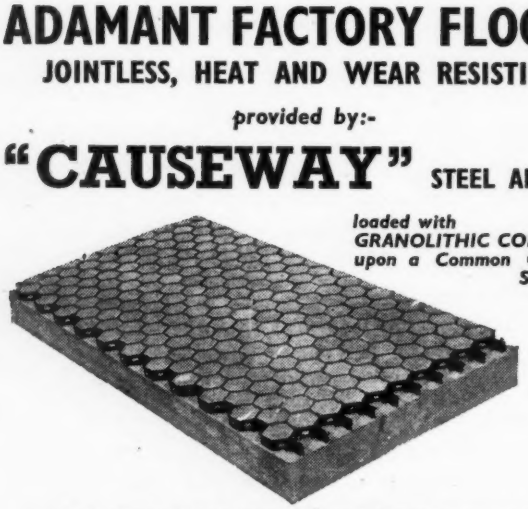
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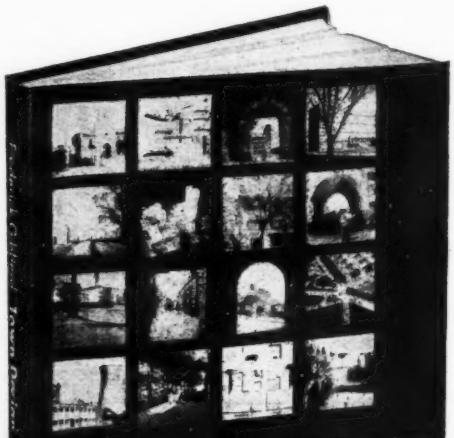
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Lionel Brett in **THE ARCHITECTURAL REVIEW**

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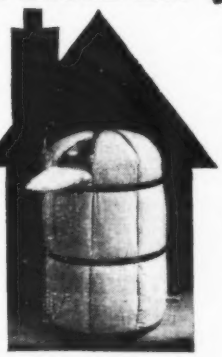
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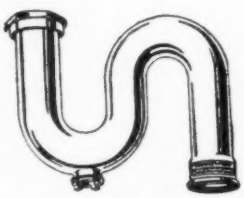
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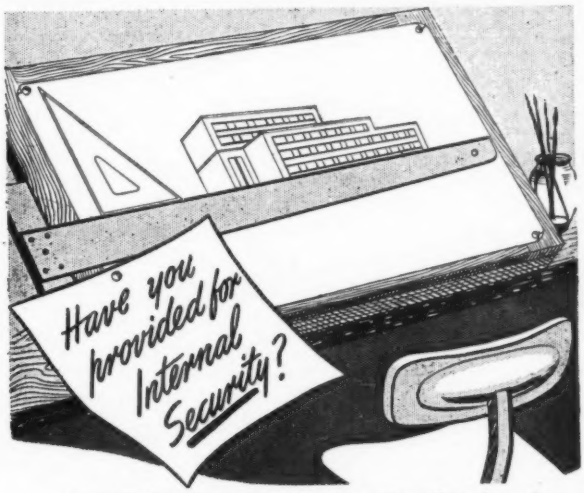


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CLASSIFIED ADVERTISEMENTS

Advertisements should be addressed to the Advt. Manager, "The Architects' Journal," 9, 11 and 13 Queen Anne's Gate, Westminster, S.W.1, and should reach there by first post on Friday morning for inclusion in the following Thursday's paper.

Replies to Box Numbers should be addressed care of "The Architects' Journal," at the address given above.

Public and Official Announcements

25s. per inch; each additional line, 2s.

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she or the employment is excepted from the provisions of the Notification of Vacancies Order, 1952.

SURREY COUNTY COUNCIL.

Applications invited for following appointments:—

(1) ASSISTANT ARCHITECT, Grade V (£750×£30—£900 p.a., plus London allowance). Should be Associate Member R.I.B.A.

(2) ARCHITECTURAL ASSISTANT, Grade II (£560×£20—£640 p.a., plus L.A.). Must be of good general training, and preference given those who have passed Inter. R.I.B.A.

(3) ARCHITECTURAL ASSISTANT, Grade I (£500×£20—£580 p.a., plus L.A.).

(4) ASSISTANT QUANTITY SURVEYOR, Grade IV (£675×£30—£825 p.a., plus L.A.). Should be Associate Member R.I.C.S.

Full details and present salary, accompanied by copies of three recent testimonials, to County Architect, County Hall, Kingston, as soon as possible. 2670

NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD.

The Board are engaged on an expanding programme of major hospital projects within the Counties of Middlesex, Hertford, Bedford, Buckinghamshire and Berkshire. The following staff, who must possess appropriate general experience in contemporary architectural design and construction, are required to fill a number of newly created posts on the establishment of the Regional Architect:—

(*a*) SENIOR ASSISTANT ARCHITECTS. Salary scale £920×£30(5)×£25—£1,095 plus £40—£50 London Weighting.

(*b*) ASSISTANT ARCHITECTS. Salary scale £640×£25(4)×£30(4)×£35(2)—£930 plus £20—£40 London Weighting.

(*c*) ARCHITECTURAL ASSISTANTS. Salary scale £480 (age 21 and over) ×£20(7)×£25(2)—£670 plus £20—£30 London Weighting.

Candidates for posts (*a*) and (*b*) above should hold full professional qualifications; those for post (*c*) should have reached Intermediate professional qualification. Starting salaries may be above minimum, having regard to the extent of experience since qualifying or reaching intermediate standard respectively. Posts are subject to Whitley Council conditions and are superannuable. Apply stating which post and giving age, qualifications (with dates) and experience to Secretary, North West Metropolitan Regional Hospital Board, 11a, Portland Place, London, W.1, by 8th October, 1955. 2830

CORBY DEVELOPMENT CORPORATION.

Applications are invited for the following appointments in the Department of the Chief Architect:—

SENIOR ASSISTANT ARCHITECT (£900×£50—£1,100).

ASSISTANT ARCHITECTS (£720 × £40—£840).

ARCHITECTURAL ASSISTANTS (£600×£30—£690).

The work of building the New Town of Corby from 23,000 to 40,000 population is now reaching its most intensive phase, and during the next seven to ten years will offer exceptional variety of experience in the design and construction of houses, flats, shops and factories.

Appointments are subject to Local Government Superannuation, and housing is available.

Applications, stating age, education, training, qualifications, experience, past and present appointments and salaries, together with the names of two referees, must reach the undersigned by Monday, 10th October, 1955.

R. F. BROOKS GRUNDY,
General Manager.
Spencer House, Corby, Northants. 2893

CUMBERLAND COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments to the Architectural Staff. N.J.C. Service Conditions. Posts pensionable. Subject to medical examination.

(*a*) ASSISTANT ARCHITECTS (A.P.T. Grade V £750—£900).
Should be A.R.I.B.A. with experience of large contracts and supervisory work.

(*b*) ASSISTANT ARCHITECT (A.P.T. Grade IV £675—£825).
Should be A.R.I.B.A. preferably with schools experience.

Applications, on forms obtainable from John H. Haughan, F.R.I.B.A., County Architect, 15, Portland Square, Carlisle, to be received by him not later than Friday, 14th October, 1955.

G. N. C. SWIFT,
Clerk of the County Council.
2923

CORBY DEVELOPMENT CORPORATION
LANDSCAPE ARCHITECT AND ASSISTANT PLANNER.

Applications are invited for the appointment of a Landscape Architect and Assistant Planner in the office of the Chief Architect, at a salary within the scale £720×£40 to £840. Candidates should be Associates or Students of the Institution of Landscape Architects, preferably with some experience in the design of housing estates.

Appointments are subject to superannuation under the Local Government scheme. Housing is available.

Applications, stating age, education, training, qualifications, experience, past and present appointments and salaries, together with the names of two referees, must reach the undersigned by Monday, 10th October, 1955.

R. F. BROOKS GRUNDY,
General Manager.
Spencer House, Corby, Northants. 2892

WORCESTERSHIRE COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.

Applications are invited for the following posts:—

ASSISTANT ARCHITECTS, A.P.T., IV (£675—£825).

ARCHITECTURAL ASSISTANTS, A.P.T., II (£560—£640).

Application forms and further particulars should be obtained from L. C. Lomas, F.R.I.B.A., County Architect, 14, Castle Street, Worcester, not later than 7th October, 1955. (C.62) 2868

FEDERATION OF MALAYA.

SENIOR LECTURER IN ARCHITECTURE required at Kuala Lumpur Technical College. Degree in Architecture or A.R.I.B.A. essential, with teaching experience. Salary within scale £1,010—£2,119 a year, plus variable expatriation and cost-of-living allowances. Post temporary, on contract for three years, with lump sum resettlement grant on satisfactory completion. Teachers' home pension rights preserved. Quarters at low rental. Free passages. Generous home leave. Low income tax. Free medical attendance. Further particulars and application forms from the Director of Recruitment, Colonial Office, Great Smith Street, London, S.W.1, quoting reference BCD. 114/23/06. Closing date for receipt of initial enquiries: 14th October, 1955. 2863

BOROUGH OF FINCHLEY.
TEMPORARY JUNIOR ARCHITECTURAL ASSISTANT.
HOUSING AND TOWN PLANNING DEPARTMENT.

Salary within Grade I, A.P.T. Division (£500×£20—£580), plus London weighting.

Candidates must have passed R.I.B.A. Inter. Examination, and should have practical office experience of housing work.

The National Scheme of Conditions of Service and the Local Government Superannuation Acts apply, and medical examination required.

Applications, stating age and full particulars of qualifications and experience, with the names of two referees, to the Borough Housing and Town Planning Officer, The Avenue, Finchley, N.3, by first post on Monday, the 3rd October, 1955.

T. M. FRANKLIN,
Town Clerk.
2836

LONDON COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.

Vacancies for ARCHITECTS, Grade III (up to £945), and ARCHITECTURAL ASSISTANTS (up to £783), for widespread construction programme, which includes houses, blocks of flats, schools of all types, and various public and industrial buildings. Application forms and particulars from Architect (AR/EK/A/2), The County Hall, S.E.1. (1189) 2766

AIR MINISTRY Works Designs Branch require in London and Provinces (with liability for overseas service) ARCHITECTURAL ASSISTANTS experienced in planning/preparation of working drawings and details for permanent and semi-permanent buildings. Salaries up to £850 p.a. (men) and £736 (women). Starting pay based on age, qualifications, and experience. Paid overtime. Posts non-pensionable with long term possibilities. Natural born British subjects only. Write stating age, qualifications, employment details, including type of work done, to any Employment Exchange, quoting Order No. BOROUGH 2303. 2163

HORNCHURCH URBAN DISTRICT COUNCIL.

Applications are invited for appointments of ARCHITECTURAL ASSISTANTS—Grades II, III, IV and V of the National Scales of Salary, *i.e.*, varying between £560/£640 and £750/£900 per annum.

All appointments are subject to the National Conditions of Service and the staff is required to assist in the preparation of major schemes for the construction of a Swimming Pool, Crematorium, a Redevelopment Scheme for the central area of Hornchurch, Housing and Public Buildings.

Applicants should state whether they require the provision of housing accommodation.

Forms of application can be obtained from the undersigned by whom completed applications should be received not later than Saturday, 15th October, 1955.

P. L. COX,
Clerk of the Council.
Council Offices,
Hornchurch.
20th September, 1955. 3011

NORTH RIDING COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment on the permanent staff of THREE ASSISTANT ARCHITECTS who must have passed the Final R.I.B.A. Examination or the equivalent School Examination. (Special Scale £650—£775.)

Appointment subject to the provisions of the Local Government Superannuation Act, 1953, to a satisfactory medical examination and one month's notice in writing on either side.

Forms of application are not being issued but applications should state age, qualifications and experience, together with particulars of present and previous appointments and names and addresses of three persons to whom reference can be made, to be delivered to the undersigned not later than 10th October, 1955.

Canvassing, directly or indirectly, will be deemed a disqualification and candidates should state in writing whether they are related to any member of, or senior officer under, the Council.

H. G. THORNLEY,
Clerk of the County Council.
County Hall,
Northallerton.
15th September, 1955. 2939

FEDERAL GOVERNMENT OF NIGERIA.
SENIOR ARCHITECT—PUBLIC WORKS DEPARTMENT.

Duties include the supervision of a large building programme being carried out for the Department of Posts and Telegraphs and the preparation of sketch plans, working drawings and detailed specifications for various types of buildings.

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Free first-class passages are granted for the officer and his wife and assistance up to £75 each for a maximum of two children is granted in respect of their passages or maintenance in the United Kingdom. Government quarters, if available, are provided at a rental of £150 per annum. Leave is granted at rate of 7 days for each month of resident service in a tour of 18—24 months.

Candidates should be A.R.I.B.A. with wide general experience

Apply in writing to the Director of Recruitment, Colonial Office, Great Smith Street, London, S.W.1, giving briefly age, qualifications and experience and quoting reference number BCD 112/14/020. The closing date for the receipt of initial enquiries, 21st October, 1955. 2938

STAFFORDSHIRE COUNTY COUNCIL.
EDUCATION COMMITTEE.

Applications are invited for STRUCTURAL DRAUGHTSMEN (Salary £560—£640 per annum) with at least two years' experience in reinforced concrete and structural steel; higher national standard preferred.

Form of Application from:—
The County Education Architect, "Green Hall," Lichfield Road, Stafford, to be returned not later than 10 days after the date of advertisement.

T. H. EVANS,
Clerk of the County Council.
2933

CARDIGANSHIRE COUNTY COUNCIL.

Applications are invited for the undermentioned vacancies in the County Architect's Department, County Hall, Aberayron:—

(*a*) SENIOR QUANTITY SURVEYOR (A.P.T. Grade VI—£825—£1,000).

(*b*) ASSISTANT ARCHITECT (A.P.T. Grade IV—£675—£825).

(*c*) ARCHITECTURAL ASSISTANT (A.P.T. Grade II—£560—£640).

(*d*) ARCHITECTURAL ASSISTANT (A.P.T. Grade I—II £500—£640).

Candidates for (*a*) should be Associate Members of the R.I.C.S. (*b*) Associate Members of the R.I.B.A. (*c*) and (*d*) have passed the intermediate Examination of the R.I.B.A.

Application forms and conditions of appointment can be obtained from the County Architect and must be returned to the undersigned not later than 17th October, 1955.

J. E. R. CARSON,
Clerk of the Cardiganshire County Council.
Swyddfa'r Sir,
Marine Terrace
Aberystwyth. 2911

MONMOUTHSHIRE COUNTY COUNCIL.
APPOINTMENT OF ARCHITECTURAL STAFF.

TWO SENIOR ARCHITECTURAL ASSISTANTS, Grade A.P.T. V, commencing salary £780 to £900 per annum.

THREE ARCHITECTURAL ASSISTANTS, Grade A.P.T. IV, commencing salary £765 to £825 per annum.

THREE ARCHITECTURAL ASSISTANTS, Grade A.P.T. III, salary £600 to £725 per annum.

FOUR JUNIOR ARCHITECTURAL ASSISTANTS, Grade A.P.T. II, salary £560 to £640 per annum.

ONE JUNIOR QUANTITY SURVEYING ASSISTANT, Grade A.P.T. II, salary £560 to £640 per annum.

Forms of application, particulars of post, and conditions of service can be obtained from the undersigned.

Applications, together with copies of three testimonials, must be forwarded to the County Architect, Queen's Hill, Newport, Mon., not later than Saturday, the 8th of October, 1955.

VERNON LAWRENCE,
Clerk of the Council.
County Hall,
Newport, Mon. 2966

CITY AND COUNTY OF NEWCASTLE UPON TYNE.
CITY ARCHITECT'S DEPARTMENT.
The City Architect will be pleased to receive applications from suitably qualified persons for the following ARCHITECTURAL vacancies in his Department :—
(*a*) A.P.T. Division, Grade V (£750—£900), Housing Section.
(*b*) A.P.T. Division, Grade IV (£675—£825), Education, Housing or General Sections.
(*c*) A.P.T. Division, Grade III (£500—£725), Housing Section.
(*d*) A.P.T. Division, Grade II (£560—£640). Housing Section.
(*e*) A.P.T. Division, Grade I (£500—£580), Education or General Sections.
The appointments will be subject to the provisions of the Local Government Superannuation Act, 1953, and to one month's notice on either side. Successful candidates will be required to pass a medical examination.
Applications, stating position applied for, age, particulars of training, qualifications, experience, present and past appointments, together with copies of two recent testimonials or the names and addresses of two persons to whom reference may be made, should be addressed to George Kenyon, A.R.I.B.A., A.M.T.P.I., City Architect, 18, Cloth Market, Newcastle-upon-Tyne, 1.
JOHN ATKINSON,
Town Clerk.
Town Hall,
Newcastle-upon-Tyne, 1.
15th September, 1955. 2927

GOVERNMENT OF BERMUDA.
ARCHITECT, PUBLIC WORKS DEPARTMENT.
To be responsible for projects from the design stage to completion in the office and in the field, including structural design.
Appointment is on contract for three years in the first instance at a salary of £2,000 per annum. Free passages provided for the officer on appointment and termination of contract. Four weeks' foreign leave per annum.
Candidates must be A.R.I.B.A., or possess equivalent qualifications. Experience on public buildings such as offices, schools and hospitals is desirable.
Apply in writing to the Director of Recruitment, Great Smith Street, London, S.W.1, stating briefly age, qualifications and experience and quoting reference No. BCD 112/29/01. 2925

HERTFORDSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.
Applications are invited for the appointment of ASSISTANT ARCHITECTS, salary grade £650—£775. Previous Local Government experience not essential.
Applications with names of two referees to County Architect, County Hall, Hertford, Herts., not later than 10th October, 1955. 2934

GOVERNMENT OF NORTHERN IRELAND.
ASSISTANT ARCHITECT.
Applications are invited for ASSISTANT ARCHITECT, Class II posts in the Ministry of Health and Local Government. The posts are temporary, but, so far as can be foreseen, will last for several years.
Candidates must be registered Architects by examination. In addition they should have experience in up-to-date house or hospital design and layout, and some aptitude for research into comparative standards of design and construction.
The salary scale which attracts pay supplement of amounts between £25 and £35 per annum is £675 × £25—£750 × £30—£960 × £40—£1,000. The commencing salary of £675 is linked to entry at age 26, with an increase of one increment for each year above that age, subject to a maximum entry point of £900 per annum, plus pay supplement of £30. An officer between 25 and 26 will be given an inclusive commencing salary of £675; and if under 25 will be paid according to qualifications and experience.
Preference will be given to suitably qualified candidates who served in H.M. Forces during the 1914—18 or 1939—45 wars provided that such candidates are, or within a reasonable time will be, able to discharge the duties efficiently.
Application forms may be obtained from the Director of Establishments, Ministry of Finance, Stormont, to whom they must be returned, together with copies of two recent testimonials, so as to reach him not later than the 10th October, 1955. 2921

HARLOW DEVELOPMENT CORPORATION
Architect Planner: Frederick Gibberd, C.B.E., F.R.I.B.A., M.T.P.I
Executive Architect: Victor Hamnett, B.Sc., A.R.I.B.A., A.R.I.C.S., A.M.T.P.I.
ASSISTANT ARCHITECTS, GRADE V(b), £565 x £30—£715 per annum for New Town work. Minimum standard Intermediate R.I.B.A. Superannuation. Accommodation available in due course in suitable cases.
Detailed applications with names of two referees to General Manager, "Terlings," Harlow, Essex, within 14 days. 2062

STAFFORD COUNTY COUNCIL EDUCATION COMMITTEE
Applications are invited for a TEMPORARY CLERK OF WORKS at £11 11s. per week to supervise structural extensions at the Dudley Technical College. Experience in supervision of Educational Buildings preferred. Forms of Application from:—County Education Architect, "Green Hall," Lichfield Road, Stafford, to be returned within ten days of this advertisement.
T. H. EVENS,
Clerk of the County Council.
2990

LONDON COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.
Vacancies for ARCHITECTURAL ASSISTANTS for work in connection with either the maintenance or recording of buildings of architectural and historic interest. Commencing salaries up to £783 a year, according to qualifications and experience. Particulars and application form, returnable by 14th October, from Architect (AR/EK/HB/2), The County Hall, S.E.1. (1523) 3006

SINGAPORE IMPROVEMENT TRUST.
The Singapore Improvement Trust requires three ASSISTANT ARCHITECTS, the appointments being in the first instance on three years' agreement. Applicants must be Associates of the Royal Institute of British Architects.
Salary scale $740/$785—$1,420 per month. ($1 Malayan = 2s. 4d.). Commencing basic salaries—(one post) $965 per month and (two posts) $740 or $785 per month, depending on qualification and experience. Applicants for the higher post should have not less than five years' post-qualification experience. Expatriation allowance varying between $205 and $275 a month and a variable allowance of 30 per cent. of basic salary subject to the following maxima are payable—(i) single officer, $90 per month; (ii) married officer without children, $180 per month; and (iii) married officer with children, $320 per month. For example, a married officer with children on a basic salary of $740 p.m. would receive total emoluments including current allowances equal to £1,633 per annum. On a basic salary of $965 the total would be £2,071 p.a. An allowance will be paid to cover the cost of duty transport. All allowances are subject to revision.
Strict medical examination. Provident Fund to which the appointee must contribute a minimum of 7½ per cent. of his basic salary. Leave and passages in accordance with Regulations. Quarters with heavy furniture, if provided, at 12½ per cent. of basic salary.
Applications in DUPLICATE stating if married or single, date and place of birth, with details of education, qualifications, training and experience, and accompanied by copies of testimonials in duplicate to Messrs. Allen & Williams, 1, Victoria Street, London, S.W.1, before Thursday, 13th October, 1955. 2915

CENTRAL ELECTRICITY AUTHORITY
EAST MIDLANDS DIVISION.
Applications are invited for the following position within the Division :—
SENIOR DRAUGHTSMAN (MECHANICAL), Generation (Construction) Department.
Vacancy No. 157/55/*AJ*
Candidates should have experience on one or more of the following :—
(i) Design and layout of Power Station equipment, including turbo-alternators, boiler plant, coal and ash plant and general station auxiliaries.
(ii) H.P. and L.P. Steam and feed pipework. Condensing plant and feed heating systems.
(iii) Conveyor plant, coal handling systems and material handling of station auxiliary equipment.
Salary will be in accordance with Grade 5 (£640 × £20—£740 per annum) or Grade 4 (£750 × £20—£850 per annum) of Schedule D of the National Joint Board Agreement.
Closing date for receipt of applications—7th October, 1955.
This appointment will be pensionable within the terms and provisions of the Central Electricity Authority and Area Boards Superannuation Scheme.
Applications should be submitted on Form AE6/ACT which may be obtained from the Divisional Establishments Officer, Central Electricity Authority, P.O. Box 25, Barker Gate, Nottingham, and should be returned to the undersigned by the date stated. Please quote Vacancy Number.
L. F. JEFFREY,
Divisional Controller.
16th September, 1955. 2914

SOMERSET COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.
Applications are invited for the following appointments :—
(*a*) ASSISTANT ARCHITECT—A.P.T. Grade VI (£825—£1,000).
(*b*) ASSISTANT ARCHITECT—Special Grade. (£650—£775).
(*c*) ASSISTANT ARCHITECT—A.P.T. Grade I (£500—£580).
(*d*) ASSISTANT QUANTITY SURVEYORS—A.P.T. Grade VI (£825—£1,000).
Applicants for post (*a*) must be Associate Members of the Royal Institute of British Architects, and have considerable designing ability.
Applicants for post (*b*) must be R.I.B.A. finalists, and for post (*c*) should be of Intermediate R.I.B.A. standard. Preference will be given to applicants with experience in the work of a local authority.
Applicants for post (*d*) must be professionally qualified, preferably associate members of the R.I.C.S., with considerable experience and ability, and competent to undertake work on all types of Local Authority projects, and more particularly educational establishments.
Applications giving full details of age, education, professional training and experience must be submitted, together with one recent testimonial and the names and addresses of two technical referees, so as to reach the undersigned not later than Tuesday, the 4th October, 1955.
Canvassing directly or indirectly will be a disqualification.
R. O. HARRIS, F.R.I.B.A.,
County Architect.
Park Street, Taunton. 2951

URBAN DISTRICT COUNCIL OF WELLINGBOROUGH.
ENGINEER AND SURVEYOR'S DEPARTMENT.
APPOINTMENT OF ARCHITECTURAL ASSISTANT.
Applications are invited for the appointment of an ARCHITECTURAL ASSISTANT at a salary in accordance with Grade II of the A.P. and T. Division of the National Scales (£560—£640 per annum).
Applicants should have had general architectural experience (with particular reference to housing) and should be good draughtsmen, possess a sound knowledge of building construction and be capable of preparing working drawings and details under supervision. Preference will be given to applicants who have passed the R.I.B.A. Intermediate Examination or its equivalent.
Housing accommodation will be provided if required.
The appointment is subject to the Local Government Superannuation Acts and the National Scheme of Conditions of Service. The successful candidate will be required to pass a medical examination.
Applications giving particulars of experience and qualifications, the names of two persons to whom reference can be made, must be sent to the Engineer and Surveyor, Council Offices, Swanspool, Wellingborough, by the 10th October, 1955.
W. G. PALMER,
Clerk of the Council.
Council Offices,
Swanspool,
Wellingborough.
16th September, 1955. 2912

BOROUGH OF WEDNESBURY.
APPOINTMENT OF ARCHITECTURAL ASSISTANT.
Applications are invited for the appointment of an ARCHITECTURAL ASSISTANT, in the Borough Engineer and Surveyor's Department, at a salary in accordance with A.P.T. Grade IV (£675 to £825).
Applicants must be experienced in the design, erection and maintenance of houses, flats, and public buildings. Preference will be given to applicants who are Associates of the Royal Institute of British Architects.
The appointment is superannuable and the successful candidate will be required to pass a medical examination.
Provision of housing accommodation to the successful candidate will be favourably considered if required.
Applications, stating age, qualifications and experience, and enclosing copies of two recent testimonials, are to be received by the Borough Engineer and Surveyor, Mr. C. G. Morrish, not later than 14th October, 1955.
D. F. THOMPSON,
Town Clerk.
Town Hall,
Wednesbury, Staffs.
29th September, 1955. 2964

COUNTY BOROUGH OF BURNLEY.
Applications are invited for the following appointments in the Borough Engineer and Surveyor's Department :—
(*a*) ARCHITECTURAL ASSISTANT, Special Grade (£650 × £25—£775).
(*b*) QUANTITY SURVEYING ASSISTANT, Grade I (£500 × £20—£580) OR Grade II (£560 × £20—£640).
(*c*) SENIOR PLANNING ASSISTANT, Grade IV (£750 × £30—£900).
Applicants for appointment (*a*) should be suitably qualified and have had considerable experience in Municipal work.
Applicants for appointment (*b*) should have a sound knowledge of building construction, and experience in the preparation of Bills of Quantities and the Measurement of Works is essential. Preference will be given to candidates holding appropriate qualifications and the Grade and commencing salary will be fixed in accordance with experience and qualifications.
Applicants for appointment (*c*) should preferably be Associate Members of the Town Planning Institute and experience in a similar capacity in a planning office is essential.
Forms of Application and Conditions of Service may be obtained from the Borough Engineer, 22/24, Nicholas Street, Burnley, to whom applications must be returned not later than first post on Saturday, the 8th October, 1955.
C. V. THORNLEY,
Town Clerk.
2913

BOROUGH OF REDCAR.
APPOINTMENT OF ARCHITECTURAL ASSISTANT.
AMENDED ADVERTISEMENT.
Applications are invited for the above established post in the department of the Borough Engineer, at a commencing salary in accordance with grade A.P.T. II (£560—£640) but with promotion to Special Grade (£650—£775) on obtaining Final Professional Qualification.
Housing accommodation will be provided, if required.
Candidates should have had good general experience and have passed the R.I.B.A. Intermediate examination.
Application Forms may be obtained from the undersigned, to whom they must be returned with the names of two referees and suitably endorsed, not later than 20th October, 1955.
HUGH CALDWELL,
Town Clerk.
Municipal Buildings,
Redcar. 3012

CITY OF SHEFFIELD.
PROPOSED CIVIL DEFENCE GARAGE.

Tenders are invited for the supply and erection on a level site in Olive Grove Depot, Sheffield, on ready-prepared floor and foundations, of a manufacturer's standard building to the tenderer's own design, for use as a 6-Bay Garage, approximately 70-ft. long, 28-ft. wide and 12-ft. to the eaves, with six sets of double doors, minimum size 9-ft. wide by 12-ft. high, on one long side.

Tenders, in plain sealed envelopes, endorsed "Tender for Civil Defence Garages," must be addressed to the Town Clerk, Town Hall, Sheffield, 1, to reach him not later than 10 a.m. on Monday, the 10th October, 1955.

The Council do not bind themselves to accept the lowest or any tender.

HENRY FOSTER,
City Engineer and Surveyor and Town Planning Officer.

Town Hall,
Sheffield, 1.
21st September, 1955. 2985

CORK CORPORATION.
TEMPORARY GRADE II ARCHITECT REQUIRED.

Applications are invited from fully qualified persons for the position of TEMPORARY ARCHITECT, Grade II, in the City Architect's Department at a salary of £650 × £20 to £750 per annum plus temporary bonus (at present 30 per cent.), with possibility of entry at a point above the minimum of the scale depending on qualifications and experience.

The appointment shall be for a period of nine months, with the possibility of extension to a maximum of three years, subject to satisfactory service. Experience in Housing is desirable.

Applications, giving age, particulars of education, professional qualifications, and experience, should reach the undersigned not later than Tuesday, 25th October, 1955. There is no prescribed application form. Applicants will be required to attend in Cork for interview at their own expense.

Canvassing directly or indirectly will prejudice the interests of applicants.

PHILIP MONAHAN,
City Manager and Town Clerk.

City Hall,
Cork.
19th September, 1955. 2975

EAST ANGLIAN REGIONAL HOSPITAL BOARD.

Department of the Regional Architect (Guy Aldis, A.R.I.B.A., A.A.Dipl.) for planning of a scheme for the major development of a General Hospital which the Board is about to undertake.

(1) ASSISTANT ARCHITECTS (3)—Candidates must be qualified and registered architects and possess good general experience in design, construction and specification writing. Knowledge of hospital work desirable. Salary £640—£930 per annum.

(2) ASSISTANT ENGINEER (Mechanical)—Candidates to be experienced in design and installation of heating, ventilating, steam boiler plant and services, etc., and should be A.M.I.H.V.E. or Graduate Members of the I.H.V.E. or equivalent. Salary £640—£930 per annum.

(3) ENGINEERING ASSISTANTS—Candidates to be experienced in work at (2) and possess Ordinary National Certificate. Salary £480 (at age 21 or over)—£670 per annum.

(4) DRAUGHTSMEN (Engineering)—Candidates to have had suitable training and experience. Salary £390 (at age 21 or over)—£580 per annum.

Additional increments within the scale based on experience and age may be granted in respect of posts (1) and (2). Commencing salary for post (3) may be fixed at point above minimum but will not exceed £560 per annum.

Applications indicating appropriate post and stating age, qualifications, experience and details of present position with names of three referees to Secretary of Board, 117, Chesterton Road, Cambridge, by 14th October, 1955. 2976

BOROUGH OF TOTTENHAM.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

Applications are invited for the following posts :—

(*a*) ARCHITECT (Established)—A.P.T. Grade IV (£675 to £825 p.a.).

Applicants must hold a final professional qualification.

(*b*) ARCHITECTURAL ASSISTANTS (One Established, one Unestablished)—A.P.T. Grade II or I (£560 to £640 p.a. or £500 to £580 p.a.).

Applicants must have passed R.I.B.A. Intermediate examination. Grading according to experience.

London Weighting allowance of £20 p.a. at age 21 years to 25 years and £30 p.a. at age 26 years and over payable in addition.

Application form and conditions of appointment from Borough Engineer, Town Hall, Tottenham, N.15, to whom applications must be delivered not later than Monday, 10th October, 1955. 2949

BOROUGH OF BARNES.

Applications are invited for a temporary ARCHITECTURAL ASSISTANT at a salary of £650 × £25—£775, plus London Weighting Allowance.

Applications giving details of experience and qualifications should be sent to the undersigned not later than Saturday, 8th October, 1955.

The Council is unable to offer housing accommodation.

W. R. SHEPHERD, A.M.I.C.E., F.R.I.C.S.,
Borough Engineer & Surveyor.

Municipal Offices,
Sheen Lane, S.W.14. 2942

SOUTH OF SCOTLAND ELECTRICITY BOARD.

Applications are invited for the position of ARCHITECTURAL DRAUGHTSMAN in the Distribution/Construction Section of the Chief Engineer's Department at Waterloo Street, Glasgow.

Applicants should have had several years' experience in an Architect's office and have passed the Intermediate Examination of the Institute of British Architects. They should be capable of preparing detailed drawings and specifications of building works, including showrooms, stores, garages, workshops and offices.

The post is superannuable and the salary will be in accordance with National Joint Board Schedule "D," Grade 5, £640/£740 per annum or Grade 6, £510/£630 per annum, according to qualifications and experience.

Applications should be made on the standard application form, which may be obtained from the undersigned and should be returned not later than 7th October, 1955.

J. MEEK,
Secretary.

P.O. Box 173,
351, Sauchiehall Street,
Glasgow. C.2.
20th September, 1955 3005

BOROUGH OF BRIDGWATER.
APPOINTMENT OF JUNIOR ARCHITECTURAL ASSISTANT.

Applications are invited for the above appointment in the Borough Architect's Department, at a salary in accordance with A.P.T. I of the National Scales of Salaries (£500—£580 p.a.).

Applicants must be Inter. R.I.B.A. with good experience in housing and general works.

Housing accommodation will be considered.

The appointment is subject to the passing of a medical examination, the Local Government Superannuation Acts, and the National Scheme of Conditions of Service and will be terminable on one month's written notice on either side.

Applications stating age, education, experience, with the names and addresses of two referees, are to be delivered to the Borough Architect, Town Hall, Bridgwater, not later than Saturday, the 8th October, 1955.

Canvassing in any form will disqualify and applicants must disclose whether they are related to any Member or Senior Officer of the Council.

H. A. CLIDERO,
Town Clerk.

Town Hall,
Bridgwater.
15th September, 1955. 2956

DENBIGHSHIRE COUNTY COUNCIL.

Applications are invited for the following appointments in the County Architect's Department, Wrexham :—

(*a*) SECTION ARCHITECT, A.P.T. Grade VI (£825—£1,000).

(*b*) TWO ASSISTANT ARCHITECTS, A.P.T. Grade III (£600—£725).

(*c*) ASSISTANT ARCHITECT, A.P.T. Grade II (£560—£640).

(*d*) ASSISTANT ARCHITECTS, A.P.T. Grade I (£500—£580).

(*e*) SPECIFICATION WRITER, A.P.T. Grade III (£600—£725).

(*f*) ASSISTANT QUANTITY SURVEYOR, Special Grade (£650—£775).

Further details and application forms may be obtained from me. Completed application forms are to be received by me not later than 15th October, 1955.

W. E. BUFTON,
Clerk of the County Council.

County Offices, Ruthin. 2960

GLAMORGAN COUNTY COUNCIL.

Vacancies exist for :—

SENIOR PLANNING ASSISTANTS—GRADE A.P.T. IV. (£675 p.a. × £30—£825 p.a.)

Candidates must be Members of an appropriate Professional Institute and preference will be given to Corporate Members of the Town Planning Institute or those who hold a University Degree in Town Planning.

PLANNING ASSISTANT—GRADE A.P.T. II. (£560 p.a. × £20—£640 p.a.)

Applicants must be suitably qualified and preferably have had previous experience of Development Control.

Applications stating age, training, qualifications, experience and present salary, accompanied by two Testimonials, should be sent to the County Planning Officer, County Hall, Cardiff, and received within ten days of the publication of this advertisement.

RICHARD JOHN,
Clerk of the County Council.
2943

LANCASHIRE COUNTY COUNCIL.

Applications are invited for the following vacancies at PRESTON :—

SENIOR PLANNING ASSISTANT (ARCHITECTURAL) A.P.T. Grade IV (£675—£825).

PLANNING ASSISTANT (ARCHITECTURAL) A.P.T. Grade I (£500—£580), II (£560—£640) or Special Scale (£650—£775).

For the senior appointment, applicants should be qualified architects; planning experience is desirable but not essential. For the other vacancy, candidates should be studying for or possess an architectural qualification; commencing salary dependent upon qualifications and experience.

Applications, stating appointment applied for, giving age, qualifications, present appointment, experience, etc., and two referees to County Planning Officer, East Cliff County Offices, Preston, by 10th October, 1955 2950

CITY OF LEICESTER.
CITY ENGINEER'S AND SURVEYOR'S DEPT.
MAINTENANCE SECTION.

Applications are invited for the appointment of MAINTENANCE ASSISTANTS in the City Surveyor's Department, in Grade A.P.T. V. (£750—£900 per annum).

Candidates should be Members of the R.I.B.A., R.I.C.S., or equivalent.

The appointments will be subject to the provision of the Local Government Superannuation Act, 1937.

Applicants should have a good knowledge and be fully experienced in the maintenance of public buildings, preparation of plans, specifications, estimating and schedules, etc. Previous Local Government experience would be an advantage.

The successful candidate will be required to pass a medical examination.

Applications stating age, qualifications, training and experience, together with the names of not less than two persons to whom reference may be made, should reach the under-signed not later than Monday, 3rd October, 1955.

The Council are unable to assist with Housing Accommodation.

JOHN L. BECKETT, M.Inst.C.E., M.Inst.Mech.E., M.Inst.Mun.E.,
City Surveyor.

Town Hall,
Leicester. 2916

NEWCASTLE REGIONAL HOSPITAL BOARD.
SPECIAL AREA COMMITTEE FOR CUMBERLAND AND NORTH WESTMORLAND.

Applications are invited for the following permanent (superannuable) appointments in the Carlisle Area-office of the Regional Architect's Department in connection with the development of the Hospital Service in Cumberland and North Westmorland.

(*a*) ASSISTANT ARCHITECT, Grade £640 × £25 (4) × £30 (4) × £35 (2) to £930 per annum.

(*b*) ARCHITECTURAL ASSISTANT, Grade £480 × £20 (7) × £25(2) to £670 per annum.

Commencing salary will depend on the applicant's age and amount of practical experience.

Applicants for post (*a*) should be Registered Architects, and applicants for post (*b*) should have passed the Intermediate Examination of the Royal Institute of British Architects and be studying for the Final Examination.

Applications stating age, qualifications, past and present appointments, present salary and details of experience and training, together with the names of three referees (of whom at least two should be architects) should be forwarded to the Clerk of the Special Area Committee, 72, Warwick Road, Carlisle, wthin 14 days of the appearance of this advertisement.

W. J. BALL,
Clerk of the Special Area Committee.

72, Warwick Road,
Carlisle. 2997

STAFFORDSHIRE COUNTY COUNCIL.
EDUCATION ARCHITECT'S DEPARTMENT.

ARCHITECTS.—Applications are invited for qualified Architects, preferably with experience in education, on Grades A.P.T. V (£750—£900 per annum), A.P.T. IV (£675—£825), A.P.T. III (£600—£725); A.P.T. II (£560—£640).

HEATING ENGINEERS.—Applications are invited from qualified Heating Engineers, preferably with experience in educational work, on Grades A.P.T. IV (£675—£825); A.P.T. III (£600—£725); A.P.T. II (£560—£640).

ELECTRICAL ENGINEERS.—Applications are invited from qualified Electrical Engineers, on Grade A.P.T. III (£600—£725).

QUANTITY SURVEYORS.—Applications are invited from qualified Quantity Surveyors, on Grades A.P.T. VI (£825—£1,000); A.P.T. V (£750—£900); Inter. Standard—A.P.T. III (£600—£725).

Form of application obtained from The County Education Architect, Green Hall, Lichfield Road, Stafford, and to be completed and returned within ten days from date of advertisement.

T. H. EVANS.
Clerk of the County Council.
2932

FIFE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments in the County Architect's Department at Cupar :—

(*a*) ARCHITECTURAL ASSISTANT—Salary scale £695, rising to £815 per annum; and

(*b*) ARCHITECTURAL ASSISTANT—Salary scale £585, rising to £715 per annum.

Candidates should be qualified Architects, having A.R.I.B.A. and Registered Architects. Previous Local Authority experience an advantage.

(*c*) ARCHITECTURAL DRAUGHTSMAN—Salary scale £515, rising to £590 per annum.

Applicants should be quick and accurate Draughtsmen, preferably having had experience in an Architectural Drawing Office.

Consideration may be given to meeting the housing needs of the successful candidates. The successful applicants will be considered for admission to the Council's Superannuation Scheme—subject to their passing a medical examination.

Applications, stating age, experience and qualifications, together with copies of recent testimonials to be lodged with the undersigned not later than 12th October, 1955.

MATTHEW POLLOCK,
County Clerk.

County Buildings,
Cupar, Fife. 3025

THE LONDON HOSPITAL, Whitechapel, E.1, requires CHIEF ASSISTANT ARCHITECT. Salary £850—£950 per annum. Applications, stating age, experience, etc., to the House Governor. 2922

Architectural Appointments Vacant

4 lines or under, 7s. 6d.; each additional line, 2s.

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she or the employment is excepted from the provisions of the Notification of Vacancies Order, 1952.

BRITISH HOME STORES, LTD., require ARCHITECT'S ASSISTANTS of various grades between 27 and 40 years of age for their Architect's Department. Salary rates from £650 to £1,000 per annum, according to experience. Applicants must have had at least 4 years' office experience. Positions give good opportunities for up-grading. Contributory pension scheme, non-contributory life assurance scheme, and subsidised staff canteen in operation. Applications in writing, giving full details of age, experience, etc., to be sent to Personnel Manager, British Home Stores, Ltd., Marylebone House, 129-137, Marylebone Road, London, N.W.1. 2961

COUNTRY office (West Surrey) require ARCHITECTURAL ASSISTANT for general practice. Inter. to Final standard. Salary required and details of experience to Box 2959.

HIGHLY qualified ASSISTANT required, to take control of London Architect's office. Experience of Bank and other commercial buildings an advantage. Box 2957.

PITE, SON & FAIRWEATHER invite applications from SENIOR and JUNIOR ARCHITECTURAL ASSISTANTS for vacancies on their staff; the work on hand includes large hospital development schemes, University and school buildings, multi-storey flats and other interesting projects. Applicants should please send particulars of their training, age, and experience to Pite, Son & Fairweather, 6, Queen Anne's Gate, Westminster, S.W.1. 2953

CONTEMPORARY approach required by Brunton, Baden Hellard & Partners from ASSISTANT, about Inter. standard, for varied work in office in South-East London or W.1. Opportunity to work on pre-fabrication techniques. Good salary and working conditions, friendly office. Write full details, 96, Eltham Road, Lee, S.E.12. 2920

ARCHITECTURAL ASSISTANTS (Senior and Junior), Private Practice, required in London and Essex offices; possibility of future partnership to suitable applicants. Apply Box 2928.

ARCHITECTURAL ASSISTANT, of R.I.B.A. Intermediate standard or thereabouts, required urgently. Apply, stating age, experience, and salary required, to Moir & Bateman, F./A.R.I.B.A., Prudential Buildings, Rochdale. 2917

SENIOR ARCHITECT required in busy office in Birmingham operating 5-day week. Salary offered £900—£1,000 per annum. Varied work offering scope for responsibility on design and administration of Hotels, Office Buildings, Industrial Buildings, Flats, etc. Also required are two less experienced ASSISTANTS at approximately £700 per annum, with prospect of filling more senior posts later. Box 2931.

ADAM GELISTER has a vacancy for a fully experienced ASSISTANT to run small and varied contracts, including showrooms and shops. Salary about £750. 42, South Molton Street, W.1. MAYfair 3506. 2935

ARCHITECTURAL ASSISTANT required in Brewery Estate Department for work on modernisation of existing properties and preparation of schemes for new licensed premises. Good prospects, contributory pension scheme. Apply, stating age, experience, and salary required, to Chief Architect, P. Phipps & Co., Ltd., 8, Gold Street, Northampton. 2936

ARCHITECTURAL ASSISTANT required in office adjacent Victoria Station. Must be good draughtsman, capable of working on own initiative and controlling small Contracts. Salary according to experience. Write, giving particulars, to H. Hubbard Ford, F.R.I.B.A., 92, Victoria Street, S.W.1. 2937

ARCHITECTURAL ASSISTANT required, about Inter. R.I.B.A. standard, for highly contemporary work in progressive office in Huddersfield area. Box 2986.

ASSOCIATED LEAD MANUFACTURERS, LTD., require a qualified ARCHITECTURAL ASSISTANT to their Northern Area Architect. This is a splendid opportunity for a responsible young architect requiring interesting and varied experience. Applications, which must be handwritten, stating training, qualifications, experience, age, and salary required, should be sent to M. Wilson, Dip.Arch., Dip.T.P., A.R.I.B.A., Crescent House, Newcastle upon Tyne, 1, before the 10th October, 1955. 2978

HICKTON, MADELEY & SALT require SENIOR and JUNIOR ASSISTANTS. Pleasant office, with a variety of interesting work. Salary according to age and experience. 24, Hatherton Road, Walsall. 2988

SOUTH-WEST AFRICA.—Qualified or unqualified SENIOR ASSISTANT for Windhoek or Walvis Bay. Experience working drawings essential. Commencing salary £60 p.m. fare out, etc. Apply, quoting OSS.83/2, Overseas Technical Service, 5, Welldon Crescent, Harrow. 2972

CONTEMPORARY DESIGNER, ARCHITECTURAL ASSISTANT required by Nairobi Architect. Recently qualified school man of honours or distinction standard might well suit. Age pref. 25-30, some practical experience valuable, initial salary £80 per month, passages paid, etc. Apply, quoting OSS.70/2, Overseas Technical Service, 5, Welldon Crescent, Harrow. 2973

ARCHITECTURAL ASSISTANTS and DRAUGHTSMAN required for interesting and varied work in the Ruislip and Northolt area. Good salaries offered with unlimited opportunities for the right applicants. Write for interview, stating age, experience, and salary required, to D. J. Field, Lawrence House, Breakspear Road, Ruislip, Middx. 2977

REQUIRED, in small office, Westminster, ARCHITECT'S ASSISTANT, with Inter. R.I.B.A. Able to do working drawings to all scales. Salary by arrangement. 2979

DESIGNER DRAUGHTSMAN or ARCHITECTURAL ASSISTANT required for work in London office of firm's Architect. Previous experience in exhibitions and showroom design desirable. Must be good, neat draughtsman, fully conversant with building construction. Work is interesting and varied, with prospects for the right man. Pension scheme. Salary by arrangement. Write, stating age, experience, and qualifications, to S. M. Sternfeldt, L.R.I.B.A., Pilkington Brothers, Ltd., 29-30, St. James's Street, London, S.W.1. 2980

LOUIS DE SOISSONS, PEACOCK, HODGES, ROBERTSON & FRASER have vacancies in their Plymouth office for SENIOR and JUNIOR ARCHITECTURAL STAFF. The work is varied and covers Ecclesiastical, Schools, and Housing (cottages and flats). Write, stating age, salary and experience, to 5, Portland Square, Plymouth, Devon. 2982

QUALIFIED ASSISTANT wanted in a small private office in Accra, Gold Coast, concerned with the highest architectural standards. Intelligence, ability and integrity of more value than experience; every opportunity for a share in the practice in the future. Salary between £960—£1,200, plus free accommodation and car provided. Write, giving details, to Box 2970, for interview in London.

SENIOR and JUNIOR ARCHITECTURAL ASSISTANTS required. State age, qualifications, experience, and salary required. Pyle & Saint, Chartered Architects, Thomas Street House, Cirencester, Glos. 2983

SENIOR ASSISTANT ARCHITECT required immediately by private firm in W.C.1 area. Varied practice, giving scope for initiative. Salary £800 to £1,000. Box 2944.

A SECTIONAL ARCHITECT required in the office of the Architect to the British Transport Commission in London. Salary range £1,300—£1,500. Must be Associate R.I.B.A., with wide practical experience, able designer interested in contemporary architectural developments. Good draughtsmanship essential. Superannuation scheme. Certain free travelling facilities. Medical examination. Write, stating age, qualifications, experience, to Manpower Adviser, British Transport Commission, 222, Marylebone Road, London, N.W.1. 2945

JUNIOR ARCHITECTURAL ASSISTANT required in Architectural Department at Reading. Salary up to £550 per annum, with Staff bonus scheme and canteen. Applications marked "Confidential," stating age, experience, and salary required, should be addressed to R. E. Southall, A.R.I.B.A., Messrs. H. & G. Simonds, Ltd., The Brewery, Reading. 2946

ARCHITECTURAL ASSISTANTS, Intermediate and Final standard, required immediately in busy established Architect's office, North of London. Varied work of contemporary character, comprising industrial, commercial and housing projects. Please reply, giving details of experience, qualifications, when available, and salary required, to Box 2948.

MISHA BLACK requires ARCHITECTURAL ASSISTANTS to join Design Research Unit. Work would include the design of buildings, interiors, exhibitions. Salary £550 to £750. Apply in writing to Design Research Unit, 37, Park Street, W.1. 2952

ARCHITECTURAL ASSISTANTS required, all grades, up to Intermediate R.I.B.A. standard, for Housing and Estate work in West End office. Salary £300 to £450 p.a., according to qualifications and experience, with prospects for advancement. Apply Percy Bilton, Ltd., 113, Park Street, W.1, or 'phone MAYfair 8240. 2654

JUNIOR ARCHITECTURAL ASSISTANT required. Apply, stating age, experience, and salary, to Sparrow & Clater, F. and A.R.I.B.A., 7, North Hill, Colchester, Essex. 2918

ASSISTANT required in busy practice in West End, in early twenties, about Intermediate R.I.B.A. standard. Excellent opportunities for gaining all round experience. Box 1942.

ARCHITECTURAL ASSISTANT required by Major Oil Company undergoing expansion, for its Sheffield office. Applicants should be of Intermediate standard, and must be capable of carrying out work on the design and re-modelling of service stations. Social Club, Pension and Life Assurance scheme, generous sickness benefits. Write, giving full details of experience, age and salary required, to Box 9862, quoting Ref. A.A. 588.

EXPERIENCED ARCHITECTURAL ASSISTANT required for work on commercial buildings. Salary according to ability and experience. Michael Egan, A.R.I.B.A., 297, Oxford Street, W.1. Mayfair 3501. 3016

ARCHITECTURAL ASSISTANT required by Braddock & Martin-Smith, A./F.R.I.B.A. Type of work in progress: schools, offices, flats, churches. Type of office: small and busy. Long term engagement preferred. Opportunity to control jobs. 5-day week. Environment unusually pleasant. Write to the above firm at The East Gallery, St. John's Church, St. John's Wood, N.W.8, giving age, experience, and salary required. 3015

WEST SUSSEX.—Qualified BUILDING SURVEYOR, with general experience, required for responsible position in connection with extensive estate development. Salary £800—£1,000 per annum, according to experience. Please write, giving full details relating to experience, to A. C. Draycott, Estate Offices, South Street, Lancing, Sussex. 3014

ARCHITECTURAL ASSISTANTS. We have a vacancy in the Architect's Section of our Plant Department for which we invite applications from men who are of at least Intermediate R.I.B.A. standard and have completed their National Service. Write, giving full details of age, experience and training to the Personnel Officer, Ericsson Telephones, Ltd., Beeston, Nottingham. 3013

INTERESTING permanent appointments for qualified or near-qualified ARCHITECTS, with opportunities for contemporary designing. Good salary with prospects for right men willing to take responsibility. Apply in writing, stating age, experience and salary required, to Forshaw, Massey & Greaves, 186, Oxford Road, Manchester, 13, or to 17, Museum Street, Warrington. 3026

DEACON & LAING, 9, St. Paul's Square, Bedford, have a further vacancy for a keen ASSISTANT, under 30, for a variety of interesting work. 3023

THE LONDON HOSPITAL, Whitechapel, E.1, requires CHIEF ASSISTANT ARCHITECT. Salary £850—£950 per annum. Applications, stating age, experience, etc., to the House Governor. 2923

SENIOR ASSISTANT required, to take charge of medium size jobs. Must have good office experience. Salary in the region of £800 p.a. Five-day week. Morris de Metz, F.R.I.B.A., 2, Ludgate Hill, E.C.4. Tel. No. CITy 4086. 3021

ARCHITECTURAL ASSISTANTS required. Interesting variety of work. Salary £700 per annum. George Watt, A.R.I.B.A., 146, Mostyn Road, S.W.19. Liberty 8181. 3020

TAYLOR, ROBERTS & BOWMAN want ARCHITECTURAL ASSISTANTS of all grades immediately for industrial, school and housing work. Write, giving fullest details of experience and salary required, to 61, Queen's Road, Oldham. 3019

SENIOR SHOPFITTING DRAUGHTSMAN required by leading London Shopfitters. Salary £800 to £1,000, plus bonus and pension scheme. Box 3018.

ASSISTANT required urgently. Associateship standard. Interesting work of all types. Pleasant office conditions. Pensions scheme. A. H. Gardner & Partners, 11, Eaton Road, Coventry. 3017

ASSISTANTS of Intermediate or equivalent standard required to assist with large schemes of contemporary nature. Salary according to experience and ability. Please write, giving full particulars of experience, to Johns, Slater & Haward, F./A.R.I.B.A., 32, Foundation Street, Ipswich. 2919

ARCHITECTURAL ASSISTANTS, of R.I.B.A. Final or Intermediate standard (or equivalent) required immediately for interesting and varied work in private practice, 50 miles London. Salary in accordance with age and experience. Please send full details to Box 3024.

VACANCY for ASSISTANT in Central London office with general practice; Final or advanced Intermediate standard R.I.B.A. or R.I.C.S. (Building). Knowledge of building construction and experience in supervising building works essential. Salary up to £600 per annum. Apply in writing, with full particulars, to Cubitt Nichols, F.R.I.B.A., F.R.I.C.S., 37, Norfolk Street, Strand, W.C.2. 2924

RAMSEY, MURRAY & WHITE have a vacancy for ARCHITECTURAL ASSISTANT, about Intermediate standard, preferably with office experience. Salary according to qualifications. Apply 32, Wigmore Street, London, W.1, or telephone WELbeck 1409. 9823

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JUNIOR ASSISTANT, competent to make measured surveys and prepare working drawings, required by Wallis & Smith, Chartered Architects, Basingstoke. Apply by letter, stating salary required. 2533

ARCHITECTURAL ASSISTANTS, Senior and Junior required, preferably with London practice experience, office and factory buildings. Write, giving particulars of experience, etc., to Messrs. Bates & Sinning, 89, Chancery Lane, W.C.2. 2508

ARCHITECTURAL ASSISTANTS, with ability and experience in houses and flats, competent draughtsman, capable of detailing, required. 5-day week. Permanent for suitable applicant. Write, stating experience and salary required, to R. Jelinek-Karl, F.R.I.B.A., 22, Chancery Lane, W.C.2. 2763

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ARCHITECTURAL ASSISTANTS wanted in general London practice. Intermediate standard or above. Please apply with details of experience, age and salary required to David A. Wilkie & Partners, 45, Chancery Lane, W.C.2. CHAncery 6460. 2676

THE London Hospital, Whitechapel, E.1, requires JUNIOR ARCHITECTURAL ASSISTANT. Salary £440 to £650 p.a. according to experience, plus London weighting. Post superannuable. Applications stating age, present salary and brief particulars of experience to be sent to the House Governor. Accommodation is available in Kensington if successful candidate is a woman. 2677

ARCHITECTURAL ASSISTANT required in busy London Office with varied practice. Good salary and prospects for suitable applicant. 5-day week. Write giving particulars of age, qualifications, experience, etc., to Box 736, c/o 7, Coptic St., W.C.1. 2826

NORMAN AND DAWBARN require ARCHITECTURAL ASSISTANTS at or above R.I.B.A. Intermediate standard with not less than 3 years' continuous office experience. Salaries will be according to age, also length and type of experience, but within the approximate range £500—£800. An interesting and varied programme of work is available. Applications stating age and details of career should be made in writing to 5, Gower Street, London, W.C.1. 2832

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(B) ASSISTANT ARCHITECTS capable of preparing working drawings and details from preliminary sketches.

Applications stating age, experience, qualifications and salary required, to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society Ltd., 1, Balloon Street, Manchester, 4. 2862

JUNIOR ASSISTANT required to assist Staff Architect of furnishing combine. The company has branches throughout Great Britain but the H.Q. is in London. The successful applicant will be given the opportunity of running small contracts and must be prepared to work on own initiative. Occasional travelling will be involved. Contributory superannuation scheme. Write giving full details in strict confidence to Box 2866.

W. H. WATKINS, GRAY, FF.R.I.B.A., & PARTNERS, require experienced ASSISTANTS for interesting hospital work. Pension scheme in operation. Reply giving full particulars and salary required to 57, Catherine Place, London, S.W.1. 2875

CO-OPERATIVE WHOLESALE SOCIETY LTD., ARCHITECT'S DEPARTMENT, MANCHESTER.

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(B) ASSISTANT ARCHITECTS capable of preparing working drawings from preliminary details.

Applications stating age, experience, qualifications and salary required to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society Ltd., 1, Balloon Street, Manchester, 4. 2861

SENIOR ARCHITECTURAL ASSISTANT required, fully experienced and capable of taking charge of large schemes of contemporary nature from design stage. Salary in the region of £800—£900 p.a. Five-day week. Please write giving full particulars of experience to Johns, Slater & Haward, F./A.R.I.B.A., 32, Foundation Street, Ipswich. 2841

EDWARD D. MILLS, F.R.I.B.A., requires additional ASSISTANTS for interesting contemporary work. Apply in writing with full details to 15, Carlisle Street, London, W.1. 2894

SENIOR and JUNIOR ARCHITECT'S ASSISTANTS required for Staff Architect's Department at Head Office of Dolcis Shoe Co. Inter. R.I.B.A. or equivalent standard required; keen interest in contemporary store design and enthusiasm for hard work. Canteen, sports/social club, and non-contribntory pension scheme. Please apply in writing to Dolcis Shoe Co., 7—13, Great Dover Street, S.E.1. 2730

ARCHITECTURAL ASSISTANT required and also JUNIOR DRAUGHTSMAN. State training and experience. Apply Lunn & Lunn, Architects, Milnsbridge, Huddersfield. 2899

A CONSCIENTIOUS and reliable ARCHITECTURAL ASSISTANT is required between the ages of 18 and 21 years, having had experience in the preparation of working drawings, sketch schemes and the survey of buildings, with the minimum of supervision. The appointment will be a permanent and progressive one. Full particulars and salary required to be addressed to the Architectural Department, William Birtwistle Allied Mills Ltd., Park Lane Mill, Preston. All replies will be acknowledged. 2900

ASSISTANT (male or female). Wanted in London Office. Intermediate Standard for Commercial and Office Buildings. Salary £500—£600 per annum. Ring MAYfair 3245. 2849

R. & D. HALL, F./A.R.I.B.A., Masonic Buildings, Bangor, North Wales, require —One qualified ARCHITECTURAL ASSISTANT and one qualified QUANTITY SURVEYOR. Interesting work in pleasant area. Ability and energy essential with salaries accordingly. 2847

ARCHITECTURAL ASSISTANTS urgently required. Fowler, Grove & Haggar, Chartered Architects, 140, Lodge Road, Southampton. 2864

ALERT and thoughtful ASSISTANT, interested in good contemporary detailing, required. Must be quick, immaculate draughtsman. Small office. Salary £550 p.a. Apply in writing, giving particulars of training and experience, to James & Bywaters, 5, Bloomsbury Street, W.C.1. 3009

BANK Architect's Department in City requires JUNIOR ASSISTANTS, aged 20-30 having completed or obtained exemption from National Service. Write, stating age, particulars of experience and salary required. Permanency for suitable applicants, subject to probationary period. Box 3010.

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ARCHITECTURAL ASSISTANTS are invited to apply for vacancies in the London Head Office of a leading Building Organisation. Initial salary in region of £750 per annum. Applicants should have Final R.I.B.A. Young ARCHITECTS with Intermediate R.I.B.A. are also required. Commencing salary in region of £600 per annum. Write, quoting reference A.A.A., and stating full details, to Box 2989.

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APPLICATIONS are invited from GRADUATES (or UNDER-GRADUATES in their Final year) in Civil Engineering of a recognised British or Irish University for appointment to the staff of Department of Main Roads, New South Wales, the State Road Authority for construction of roads and bridges.

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GRAHAM CRUMP & DENIS CRUMP, F./A.R.I.B.A., 43, George Street, Croydon, require two ARCHITECTURAL ASSISTANTS, Inter. R.I.B.A. to Finals standard. Please state experience and salary required. 2998

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GUILDFORD Architects require ASSISTANTS for detail work on new schools. Write, stating salary required, to Hiscock and Duncan Scott, Chartered Architects, 32, London Road, Guildford. 3003

VACANCY exists in Westminster office for an ASSISTANT of Intermediate standard to work on commercial and industrial buildings of contemporary design. Telephone SLO. 7287 for appointment, or write Box 3002.

FRY, DREW, DRAKE & LASDUN require Senior experienced ARCHITECTURAL ASSISTANTS. Apply in writing, with full details, to 53, Gloucester Place, London, W.1. 3001

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ARCHITECTURAL ASSISTANT for professional firm in Westminster. R.I.B.A. Final standard. Salary from £750 upwards, according to experience in industrial building work. Box 2969.

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The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she or the employment is excepted from the provisions of the Notification of Vacancies Order, 1952.

ASSISTANT BUILDING SURVEYOR required for the Sheffield Office of a major oil company undergoing expansion. Applicants should have a sound knowledge of building construction and bye law requirements, and be capable of carrying out surveys, preparing drawings and specifications relating to service stations. Pension and Life Assurance Scheme, generous sickness benefits, Social Club. Write, giving full details and stating age, experience and salary required to Box 1594, quoting Ref. ABS/S 720.

ASSISTANT QUANTITY SURVEYOR required by major oil company in Sheffield branch office. Applicants should be prepared to act on own initiative for the preparation of approximate estimates, interim certificates and final accounts for contracts up to £10,000. Salary range to commence £600—£700 per annum. Pension and Life Assurance Scheme, generous sickness benefits, Social Club. Write, giving full details of experience, age and salary required, to Box 2436, quoting Ref. AQS/8798.

BUILDING SURVEYING ASSISTANT (about R.I.C.S. Final standard), with 4 years' practical experience, required by City firm of Chartered Surveyors and Architects. Box 2775.

BUILDING SURVEYING ASSISTANT (about R.I.C.S. Inter. standard), with 2 years' practical experience, required by City firm of Chartered Surveyors and Architects. Box 2774.

BUILDING ASSISTANT required by major oil company undergoing expansion for responsible work in connection with alterations and new work for petrol filling stations. The vacancy is in Sheffield. Applicants should be 22—25 years of age, keen and hard-working, with practical surveying and building experience, preferably in a Contractor's office and hold the National Building Certificate. Pension and Life Insurance scheme, generous sickness benefits, and Social Club are available. Write, giving full details of age, experience and salary required to Box 2857, quoting Ref. ABS 727.

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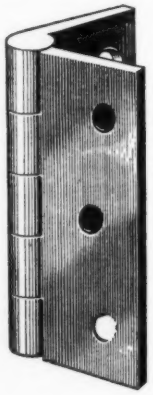
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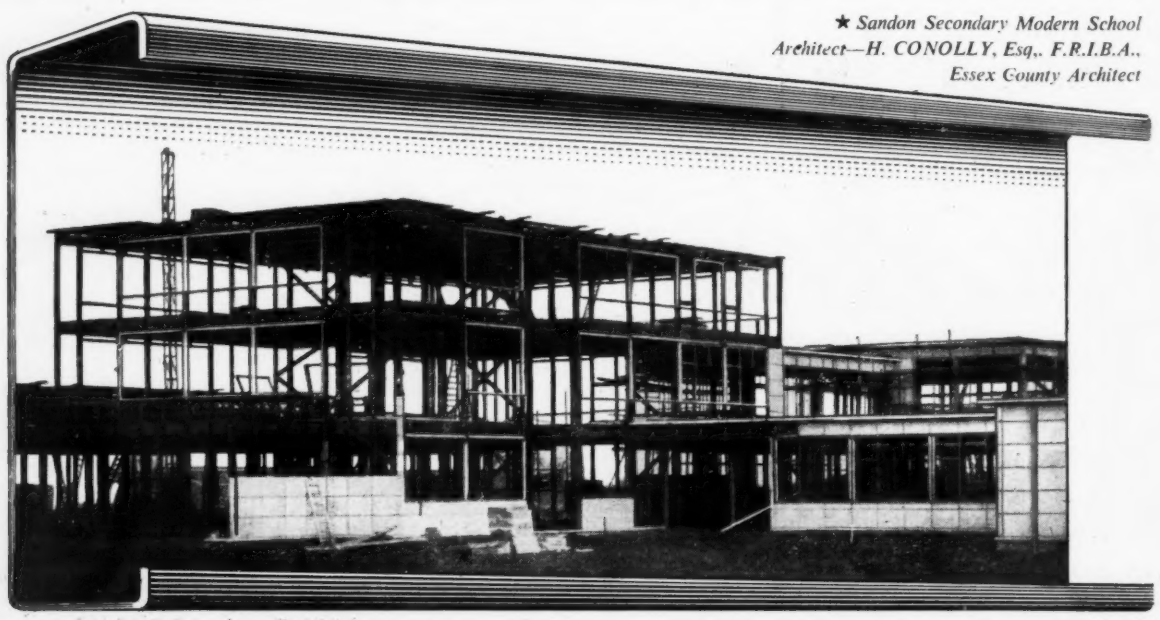
	PAGE
A.B.S. Insurance Agency, Ltd.	lxxix
Acrow (Engineers), Ltd.	—
Alexandria Trading Corpn., Ltd.	lix
Architectural Press, Ltd., The	lxiv, lxviii
Armstrong Cork Co., Ltd.	xi
Austin, James, & Sons (Dewsbury), Ltd.	xv
Automatic Pressings, Ltd.	lxxix
Baldwin, Son & Co., Ltd.	lxxvi
Batley, Ernest, Ltd.	lxviii
Becket, Laycock & Watkinson, Ltd.	lxii
Bendz, Ltd.	lxix
Booth, John, & Son (Bolton), Ltd.	—
Boulton & Paul, Ltd.	lxiii
Bowaters Building Boards, Ltd.	1
Brentford Electric, Ltd.	xlii
Briggs, William, & Sons, Ltd.	xxiii
British Paints, Ltd.	—
British Titan Products Co., Ltd.	xx
British Trolley Track Co., Ltd.	xix
Broads Manufacturing Co., Ltd.	xxii
Brockhouse Steel Structures, Ltd.	lxxviii
Brooks Ventilation Units, Ltd.	xxv
Bryce, White & Co., Ltd.	—
Causeway Reinforcement, Ltd.	lxviii
Celotex, Ltd.	xvi
Clark, James, & Eaton, Ltd.	xxxiv
Claygate Fireplaces, Ltd.	lxiv
College of Estate Management	lxxvi
Compactom, Ltd.	lii
Conex-Terna, Ltd.	xxviii
Copperad, Ltd.	liv
Costain Concrete, Ltd.	—
Cox Bros. Co. (Derby), Ltd.	xvii
Crofield, Ltd.	lxiv
Croggon & Co., Ltd.	lx
C.S.A. Industries, Ltd.	—
Denton Edwards Paints, Ltd.	lxv
Docker Brothers	—
Dorman, Long & Co., Ltd.	xliii
Durasteel, Ltd.	—
Econa Modern Products, Ltd.	lxxix
Edison Swan Electric Co., Ltd.	xxxviii
Ecto Insulations, Ltd.	lxix
Ellis, John, & Sons, Ltd.	xxix
Ellis School of Architecture	lxxvii
Empire Stone Co., Ltd.	—
English Clock Systems, Ltd.	x
Engravers' Guild, Ltd., The	lv
Evode, Ltd.	v

	PAGE
Expanded Metal Co., Ltd., The	vii
Ezee Kitchens, Ltd.	lxiv
Fairhead, Allen & Sons, Ltd.	xxxi
Falk, Stadelmann & Co., Ltd.	xxiv
Fencing & Gates, Ltd.	lxxvii
Fibreglass, Ltd.	liii
Finch, B., & Co., Ltd.	—
Finlock Gutters, Ltd.	li
Floor Treatments, Ltd.	lxxvi
Frank, Charles	lxxvii
Franki Compressed Pile Co., Ltd., The	—
Furse, W. J., & Co., Ltd.	lxxvii
General Electric Co., Ltd., The	ii
Glazed & Floor Tile Manufacturers' Association, The	—
Greenwood's & Airvac Ventilating Co., Ltd.	lxii
Gyproc Products, Ltd.	—
Gypsum Mines, Ltd., The	lix
Hammond & Champness, Ltd.	—
Harris & Sheldon, Ltd.	xlix
Harvey, G. A., & Co. (London), Ltd.	lxi
Hathernware, Ltd.	lxxvii
Henderson, P. C., Ltd.	xliv
Higgs & Hill, Ltd.	—
Hills (West Bromwich), Ltd.	lv
Hobbs, Hart & Co., Ltd.	lxix
Hope, Henry, & Sons, Ltd.	xlvi
Ibstock Brick & Tile Co., Ltd.	lxxviii
Imperial Chemical Industries, Ltd.	—
International Correspondence Schools	lxxvii
Jenson & Nicholson, Ltd.	xiii
Jones, T. C., & Co., Ltd.	iv
King, J. A., & Co., Ltd.	lx
Kingfisher, Ltd.	—
Leaderflush, Ltd.	xlvii
Linoleum Manufacturers' Association, The	xxxv
Linread, Ltd.	lxvii
Lion Foundry Co., Ltd., The	lviii
London Brick Co., Ltd.	xxxii
Lumenated Ceilings, Ltd.	xl
Magnet Joinery, Ltd.	—
Marshall & Anderson, Ltd.	lxvii
McCarthy, M., & Sons, Ltd.	lxxvii
Merchant Adventurers of London, Ltd.	—
Midland Electric Manufacturing Co., Ltd.	xiv

	PAGE
Mills Scaffold Co., Ltd.	lxxx
Mitchell, Russell & Co., Ltd.	lviii
Morris Singer Co., Ltd., The	viii
National Federation of Clay Industries, Ltd., The	xlviii
Neuchatel Asphalte Co., Ltd.	—
Northern Aluminium Co., Ltd.	lvii
Norwood Steel Equipment, Ltd.	—
Nu-Swift, Ltd.	lxxvii
Ozalid Co., Ltd.	ii
Panelec (G.B.), Ltd.	lxv
Paramount Asphalte & Flooring Co., Ltd.	lxi
Parker, Winder & Achurch, Ltd.	—
Parmiter, Hope & Sugden, Ltd.	lxix
Permanite, Ltd.	xxi
Prodorite, Ltd.	—
Radiation Group Sales, Ltd.	xxx
Remploy, Ltd.	lxii
Richardson & Starling, Ltd.	lx
Robb's Cement Enamel Finishes, Ltd.	—
Robertson Thain, Ltd.	xxxvii
Rom River Co., Ltd., The	xviii
Ruberoid Co., Ltd., The	—
Saro Laminated Wood Products, Ltd.	xxvi
Seaboard Lumber Sales Co., Ltd.	xxxiii
Seco, Ltd.	—
S.I. Buildings, Ltd.	lxiii
Simplex Electric Co., Ltd.	xxvii
Smith & Rodger, Ltd.	lxxix
Smith's Fireproof Floors, Ltd.	xxii
Sommerfelds, Ltd.	lxxvii
Southerns, Ltd.	—
Steventon, John, & Sons, Ltd.	lvi
Taylor, Robert & Co. (Ironfounders), Ltd.	vi
Teleflex Products, Ltd.	lxvi
Thermalite, Ltd.	—
Troughton & Young (Lighting), Ltd.	ix
Tyrol Sales, Ltd.	—
Unit Construction Co., Ltd.	xii
United Steel Companies, Ltd., The	xli
Venus Pencil Co., Ltd., The	liv
Ward & Company	lxxvii
Washington Engineering, Ltd.	lxvi
Wednesbury Tube Co., Ltd., The	xxxvi
Williams & Williams, Ltd.	iii
Woolaway Constructions, Ltd.	lxxv
Wright, Anderson & Co., Ltd.	—
Zinc Development Association, The	xxxix

For Appointments (Wanted or Vacant), Competitions Open, Drawings, Tracings, etc., Educational, Legal Notices, Miscellaneous Property, Land and Sales, see lxx, lxxi, lxxii, lxxiii, lxxiv, lxxv, lxxvi, lxxvii.

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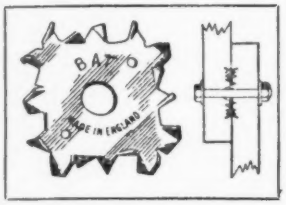
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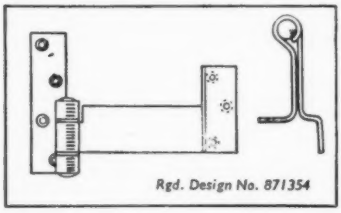
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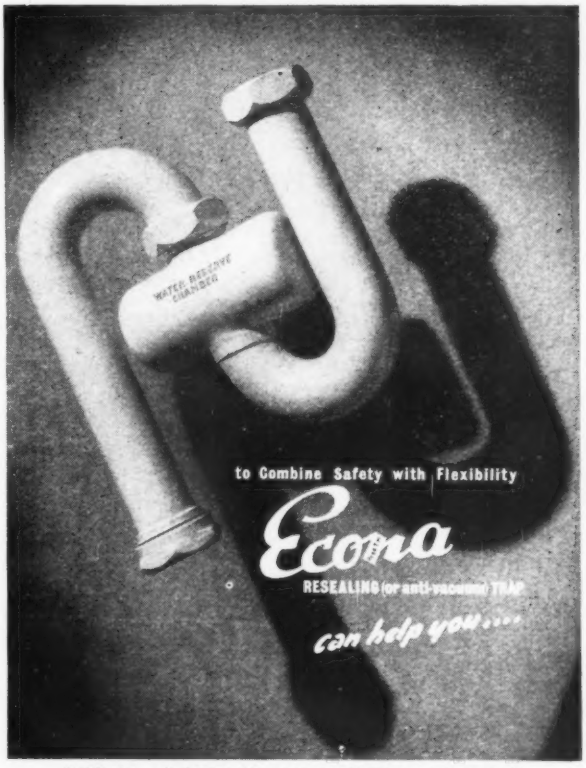
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